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# PHILOSOPHERS – THE GREATEST TEACHERS OF THE WORLD\*

Ilija Kajtez\*\*

University of Defence in Belgrade, Military Academy

A teacher must always be a moral role model for his students, he must chaperone and lead them in good, and never leave them on their own in evil, and in order to be a leader of men, one must respect and love others (followers), he must be righteous and he must perseveringly care and invest every possible human effort into building his community. True teachers of their communities always serve other people, they place wellbeing of others before their own, striving to contribute to the common good.

The profession of a teacher is a presupposition and a necessary basis for any other profession, because members of all, particularly socially most important professions, first gain foundations, ethical virtues and work capacities in the lowest, basic steps of education. People who do not understand the essence and the secret of life believe that one can be a genuine doctor, statesman, priest, judge and soldier even without elementary and primary knowledge, that knowledge and spiritual vertical can be upgraded without firm intellectual basis and good foundation of culture. Such a growth and development simply contradicts the very nature of life.

Key words: *teacher, teacher's calling, student, education, nurture, teacher's profession, community, our time*

*"Every man is capable of philosophical thinking, but only the chosen ones do actually think this way. Philosophers are not the elite in an economic, social or political sense, but they are in a spiritual one."* (Đuro Šušnjić)

*"Those neglecting philosophy and devoting themselves to general studies were like suitors who, though wanting Penelope, slept with her maids."* (Gorgias the sophist)

## Why are people educated and nurtured

*"Although the roots of education are bitter, the fruits are sweet."* (Isocrates)

*"There are two human inventions which may be considered more difficult than any others – the art of government, and the art of education..."* (Immanuel Kant)

*"Education is the path"* (Nietzsche)

*On one occasion he (Aristotle) was asked how much educated men were superior to those uneducated; "DAs much," said he, "as the living are to the dead."* (Diogenes Laertius)

\* Translated by MA Dragan Stanar, Faculty of International Politics and Security, University UNION – Nikola Tesla.

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Every society, from the dawn of time till today, has one of the most crucial roles, to prepare the young members of the community for their future social life.<sup>1</sup> Many a philosopher, from the earliest of days, testify about the importance of learning, education and nurture. "Aristotle considers a man to be an animal, and if he fails... to gain "virtue" by studying, then "no animal is as unscrupulous, wild... gluttonous" as man."<sup>2</sup> Russel says that learning and science are a condition of every society's progress.<sup>3</sup> Ancient Greeks<sup>4</sup>, who are a foundation of all things of value in our civilization<sup>5</sup>, write about education and nurture. "What value was attributed... to education,<sup>6</sup> comes... from the fact that renegades among subjects, as it is said, were imposed with the harshest of punishments, the prohibition to subject their children to schooling."<sup>7</sup> No wonder then that "This is what people do, who are most able... Their sons begin school at the earliest age, and are freed from it at the latest."<sup>8</sup> Sophists are the first traveling teachers of Greece, and Protagoras (481-410 BC) is the founder and "the first and the greatest of sophists."<sup>9</sup> He was very interested in nurture and teaching. He took a fancy to the calling<sup>10</sup> of nurturing and educating people, and he took on the profession of a traveling teacher when he was thirty years old, and stayed in it until his death, or to say around four decades. Pericles knew him, welcomed him and respected him. Antiphon (sophist), like Protagoras, also engaged in education: "For when a matter is properly started, odds are that the ending will be proper. Harvest is to be expected according to the seed that has been planted in the soil. When proper education is sowed in a young soul, it lives and flourishes during the entire life, and it cannot be destroyed, neither by rain nor drought."<sup>11</sup> Sophists are the founders of educational science. "Philosophy, which was until then a matter of individuals, exited schools and entered squares, to become the property of all... public... teachers were the sophists, Hellenic humanists, encyclopaedists, bearers of the new ideal of education... and fathers of the new

<sup>1</sup> "All societies must be characterized by learning, or else they will become extinct." (Mark K. Smith).

<sup>2</sup> Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, page 16.

<sup>3</sup> "There is only one road to progress, in education... and that is: Science wielded by love. Without science love is powerless; without love, science is destructive. The power of moulding young minds which science is placing in our possession is a very terrible power, capable of deadly misuse; if it falls into the wrong hands, it may produce a world even more ruthless and cruel than the haphazard world of nature... The teaching must be inspired by love, and must aim at liberating love in the children. If not, it will become more efficiently harmful with every improvement in scientific technique." Russel, Bertrand: *On Education*, Routledge, London, 2003 page 153.

<sup>4</sup> "So much depends of the development of Greek culture, that our entire Western world has taken its driving forces from it..." Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 93.

<sup>5</sup> "...glorious teachers and educators, philosophers... with their theoretical and practical endeavors... built the foundations of the world we live in today, along with the foundations of nurture and education which... we naturally consider *our own*." Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 124.

<sup>6</sup> "If cultural capital isn't... systematically transferred to young generations via nurture and education, then it deserves the name *dead capital*..." Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, page 162.

<sup>7</sup> Aelianus, taken from: Burhart, Jakov: *Povest grčke kulture I-IV* volume III, Izdavačka knjižnica Zorana Stojanovića – Dobra vest, Sremski Karlovci, Novi Sad, 1992. page 328.

<sup>8</sup> Plato: *Laches, Protagoras, Meno, Euthydemus*, Harvard University Press, Cambridge, 1952, page 145.

<sup>9</sup> Jarrett, James L: *The Educational Theories of the Sophists*, New York, Teachers College Press, Teachers College, Columbia University, 1969, page 22.

<sup>10</sup> "A spiritual calling is so much more than just an occupation, vocation or profession." (Đuro Šušnjić).

<sup>11</sup> Đurić, Miloš: *Istorija helenske književnosti*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1990, page 212.

enlightenment.”<sup>12</sup> They laid foundations of pedagogy: “...and intellectual education even today greatly follows the path they marked.”<sup>13</sup> Plato (427-347. BC) wishes to reach a goal, to establish an organized and proper state, which is attainable if the ideal of future statesmen, which unite political power and philosophical wisdom, is achieved using proper education of the youth.<sup>14</sup> “In the description of the philosopher who is to realize the perfect state<sup>15</sup> as its ruler and inspire it as its teacher, it would appear that we have reached the end of the contribution of *The Republic*...namely, the transformation of the state into an educational institution for the development of the best in human personality which is, both individually and socially, the highest possible value.”<sup>16</sup> Aristotle (384-322. BC) follows in Plato’s footsteps, when it comes to state’s role in education,<sup>17</sup> because a state must tend to organization and implementation of nurture and education, and these are such important issues for the survival of the state, that they cannot be left to private individuals, not even a family.<sup>18</sup> For Aristotle, a state determines both the goal of education and nurture, and the best methods of achieving the set goal. Aristotle considered three things to be necessary for education: natural qualifications, instruction, and practice.<sup>19</sup> “In education, then, which presumes natural gifts on which to work, habit must come first, instruction second.”<sup>20</sup> Education must synthesize bodily, moral and intellectual elements. We must here remember the glorious Socrates (469-399 BC) who greatly respects the power of education, and to which he dedicates his life.<sup>21</sup> Socrates is an archetypal educator more than any other man.<sup>22</sup> Socrates’s mind is in the foundation of our world.<sup>23</sup> “He (Socrates) is the central point in the making of the Greek soul. He is the greatest teacher in European

<sup>12</sup> Đurić, Miloš: *Stoici i njihov istorijski značaj*, Naučna knjiga, Belgrade, 1955, page 5.

<sup>13</sup> Jaeger, Werner: *Paideia: The ideals of Greek Culture*, Vol. 2, Basil Blackwell, Oxford, 1947, page 97.

<sup>14</sup> “The greatest thinker of the old age placed politics in the epicenter of his philosophy, in the epicenter of politics he placed a state, and in the very heart of the state (as a life and death question) he finds a place for education” Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 264.

<sup>15</sup> Epaminondas, glorious Theban statesman and brilliant general, nurtured in Pythagorean spirit, a man who could serve as an ideal of king-philosopher, because he was educated in philosophy, music and oratory.

<sup>16</sup> Jaeger, Werner: *Paideia: The ideals of Greek Culture*, Vol. 2, Basil Blackwell, Oxford, 1947, page 320.

<sup>17</sup> For him, education is a particularly important social activity, which contributes to ennobling man’s soul.

<sup>18</sup> “System of nurture and education was largely based on the understanding that nurture and education, culture of learning... is exactly the *differentia specifica* which distinguishes Greeks (especially Athenians) from all other tribes and nations... Isocrates says that paideia, as a common characteristic of all Greeks is more important than common blood and descent...” Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 123.

<sup>19</sup> Laertius, Diogenes: *The Lives and Opinions of Eminent Philosophers*, Henry G. Bohn, London, 1853, page 187.

<sup>20</sup> Browning, Oscar: *An Introduction to the History of Educational Theories*, Kegan Paul, Trench L& Co Ltd. London 1882, page 15.

<sup>21</sup> Socrates thought that he did not meet any of the three conditions (that he created) required for a teacher, because he neither found suitable teachers for himself, nor could he present successful students as proof of his teaching skills, nor could he answer his own question. He convinces those who desire him to be their teacher that he himself is in need of one. Socrates was distinctive in all aspects. Distinctiveness is his other name.

<sup>22</sup> Hummel, *Plato*, UNESCO, International Bureau of Education, Paris, 1994. Vol 24. page 5.

<sup>23</sup> “Socrates is alive even today, more than many of the living... Socrates is the first personality of the old age, and he knows it.” Šušnjić, Đuro: *Sokrat – Život za istinu*, Čigoja, Belgrade, 2003, pages 74. and 48.

history.<sup>24</sup> Socrates<sup>25</sup> was himself a school, and a moving university. "The respect for the power of education is also derived from the clear representation of all the damage and all the evil that can derive in the case that capabilities and gifts of an individual...are not developed in the right manner."<sup>26</sup> Faith in the power of knowledge, nurture and education<sup>27</sup> is one of many significances of Socrates's thought and his actions.<sup>28</sup> He lives the conviction that nurture and philosophical education can *transform people's lives*<sup>29</sup> for the better. The famous Aristotle also understands education as the mean and path, as a necessary condition of human, cultural and social development: "...Since the whole city-state has one single end, however, it is evident that education too must be one and the same for all, and that its supervision must be communal, not private..."<sup>30</sup> Plato also based his education on these ideas. He claims that education must be the first and the most important concern of the state, because the state and its survival depend on the success of modeling citizens who are needed by the state, using education. "Educational work encompassed all areas of human knowledge and skills, and all – both individuals and the entire nation – took part and competed in it to gain spiritual victories, and were thus able to create works which the world holds in admiration..."<sup>31</sup> Plato's idea is that nurture and education ought to be controlled by the state, with it being mandatory and equal for all, with the educational opportunities and rights based exclusively on individual differences. Isocrates<sup>32</sup> (436-388 BC) writes: "Athens has surpassed the rest of humanity in thought and in word so much, that its students became teachers of the world, and made the Greek name no longer stand for race but spirit, and that the term *Greeks* is used... for those sharing our culture (education)..."

Forms and sizes of human communities change historically, but the foundational role of society in the process of cultivation and socialization forever remains.<sup>33</sup> Wise Kant distinctly

<sup>24</sup> Jaeger, Werner: *Paidea: The ideals of Greek Culture*, Vol. 2, Basil Blackwell, Oxford, 1947, page 27.

<sup>25</sup> There are controversies about the significance of his personality: "For some, he is a mystically-enlightening spirit (M.Croiset), preacher of repentance (E.Homeffer) or a universally deep religious nature (I.Bruns), practical missionary and apostle of moral (H.Maier) social reformer (A. Doring)... a rationalist and a dialectician (E. Schwartz, K. Joel, J. Stenzel), founder of a new method and a new philosophical movement (E.Zeller)... an ingenious individual fighting the numb masses (R.Pohlmann)... Soon after his death, Socrates became a mythical figure and mystery." Đurić, Miloš: *Istorija helenske etike*, BIGZ, Belgrade, 1976, page 233.

<sup>26</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 168.

<sup>27</sup> "This way even the very gifted men, those who distinguish themselves with strong spirit and who are capable of finishing everything they do, become very capable and useful if they are educated and taught what they ought to do, then they perform many and very great goods. If they remain uncultured and uneducated, they become very bad and inflict the greatest of damages..." Xenophon, *Ksenofontovi izabrani spisi*, Naklada matice Hrvatske, Zagreb, 1980, page 96.

<sup>28</sup> "For Socrates, philosophy wasn't a content, but a living function, constant struggle... of the soul, seeking which never finishes being seeking..." Đurić, Miloš: *Istorija helenske etike*, BIGZ, Belgrade, 1976, page 241.

<sup>29</sup> Woodruff, Paul, *Socratic Education*, u Rorty, 2005. page 13. (Rorty, Amelie Oksenberg (ed), *Philosophers on Education, Historical Perspectives*; London/New York, Routledge.

<sup>30</sup> Aristotle: *Politics*, Hackett Publishing Company, Indianapolis, 1998, 1337a, 20, page 227.

<sup>31</sup> Đurić, Miloš: *Istorija helenske etike*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1987, page 175.

<sup>32</sup> "... he is primarily.... a teacher, a great teacher in a city which considered itself a city of teachers" (James L. Jarret).

<sup>33</sup> "Socialization signifies a process of unorganized and organized influence of society with the purpose of forming a personality which suits the needs of the given society... society... using different forms and levels of education and nurture develops in a man... human and individual capabilities... Cultivation represents a broader notion... than socialization..." Flere, Sergej; Marjanović, Miloš: *Uvod u sociologiju*, Naučna knjiga, Belgrade, 1990, page 15.



observes that the particularity of man lies in this, because: “Man is the only creature that needs to be educated.”<sup>34</sup> Education appears in all societies, and expresses some constant needs of human society reproduction.<sup>35</sup> Kant writes of the importance of nurture and education: “All the natural endowments<sup>36</sup> of mankind must be developed little by little out of man himself, through his own effort. One generation educates the next... It is discipline, which prevents man from being turned aside by his animal impulses<sup>37</sup> from humanity... Discipline is... negative... The positive part of education is instruction... Man needs nurture and culture. Culture includes discipline and *instruction*... Man can only become man by education... man is only educated... by men who have themselves been educated. Hence with some people it is want of discipline and instruction on their own part, which makes them in turn unfit educators of their pupils... it is sad to one who loves his fellow-men, to see how those in high rank generally care only for their own concerns... for with education is involved the great secret of the perfection of human nature... An idea is nothing else than the conception of a perfection... And the idea of an education which will develop all man’s natural gifts is certainly a true one.”<sup>38</sup> Besides Rousseau and Kant, Russel also dealt with the subject of education, in his essay “*On Education*”, where he writes: “Education consists in the cultivation of instincts<sup>39</sup>, not in their suppression. Human instincts<sup>40</sup> are very vague, and can be satisfied in a great variety of ways... Thus the secret of instruction, in so far as it bears upon character, is to give a man such kinds of skill as shall lead to his employing his instincts usefully. The instinct of power... can find in later life a refined satisfaction by scientific discovery, or artistic creation, or the creation and education of splendid children...”<sup>41</sup> All the mentioned philosophers addressed the issue of how to adjust human nature to the requirements of social life, in their own way. Radomir Lukić also points out: “Man does not behave as a natural, but rather as a cultural being, he does not live a natural, but a cultural life... we have the transference of culture with humans... which enables development and progress of that society... In principle, man is... capable of

<sup>34</sup> “Everything we do not have at our birth and which we need when we are grown is given us by education.” Jean-Jacques Rousseau: *Emile or on Education*, Basic Books, New York, 1979, page 38.

<sup>35</sup> “Process of nurturing is realized... first in family... and then in... social groups... In later phase school, peer groups, youth, political, military and other organization become important nurture agents.” *Sociološki leksikon*, Savremena administracija, Belgrade, 1982, page 728.

<sup>36</sup> “There is only one science to teach to children. It is that of man’s duties.” Jean-Jacques Rousseau: *Emile or on Education*, Basic Books, New York, 1979, page 51.

<sup>37</sup> “Only the one who could observe the entire world as an illusion, would be able to observe it unburdened with lusts and instincts: artist and philosopher. Instinct ends here.” Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 94.

<sup>38</sup> Kant, Immanuel: *On Education*, D.C. Heath and Co., Boston, 1900, pages 2-9.

<sup>39</sup> “During the process of nurture, individual changes... development of intellectual abilities, especially speech, overcoming child egoism and egocentrism, learning to behave in social processes and groups, adopting roles characteristic for adult member of social community, adopting culture (knowledge, skills, beliefs, rules, values), maturing... personalization and individualization...” *Sociološki leksikon*, Savremena administracija, Belgrade, 1982, page 729.

<sup>40</sup> “The raw material of instincts is ethically neutral, and can be shaped either to good or evil by the influence of the environment... A proper education would make it possible to live in accordance with instinct, but it would be a trained and cultivated instinct, not the crude, unformed impulse which is all that nature provides. The great cultivator of instinct is skill...” Russel, Bertrand: *On Education*, Routledge, London, 2003 page 90.

<sup>41</sup> *Ibid.* page 85.

sustaining cultural continuity and accepting previous culture. This acceptance is performed by education in the broadest sense...<sup>42</sup> Lukić claims that the immediate social life in which an individual lives, has more of an influence on education of a man, "than consciously directed special actions which educate him... education, and especially schooling. In the process of socialization, two basic elements ought to be distinguished. First is the element of *socialization in a narrow sense (socialization)* and the second is *teaching of culture (cultivation)*."<sup>43</sup> Both elements are inseparable, because they are "... parts of the same process, socialization... they transform a man from... biological into a social being."<sup>44</sup> Cultivation and socialization,<sup>45</sup> as the broadest of notions, contain narrower notions: nurture and education.<sup>46</sup> The notion of education refers to the transference of knowledge and skills which have a practical character, unlike, as some consider, value and normative elements of culture which would represent nurture in a broader sense. "Man's duty is to improve himself; to cultivate his mind<sup>47</sup> ... Upon reflection we shall find this very difficult. Hence the greatest and most difficult problem to which man can devote himself is the problem of education... The mechanism of education must be changed into a science... Children ought to be educated, not for the present, but for a possibly improved condition of man in the future... Man... his dispositions must be so trained that he shall choose none but good ends-good ends being those which are necessarily approved by everyone, and which may at the same time be the aim of everyone."<sup>48</sup> Of course, there are other understandings: "Education is the transformation of human individuum in the direction of development of his psychophysical powers, and adopting empirical content in constant contact the natural, social and cultural reality... If education can be acquired in various accidental contacts with reality... in self-education<sup>49</sup>... it is still expressed the strongest in a systematically

<sup>42</sup> Lukić, Radomir: *Osnovi sociologije*, Naučna knjiga, Belgrade, 1970, pages 166-167.

<sup>43</sup> "Cultivation consists of adopting cultural formations of a given society. Culture bounds a man to other people, understanding them... Socialization in a broader sense, provides an individual a foundation of... his own *personality*..." Lukić, Radomir: *Osnovi sociologije*, Naučna knjiga, Belgrade, 1970, page 193.

<sup>44</sup> Ibid.

<sup>45</sup> "Without socialization, an individual would barely resemble a human being... It is said that emperor Akbar, who ruled in India from 1542. till 1602, ordered for a group of children to be raised without any lessons in language, to test the belief that they would eventually speak Hebrew, the language of God... They never spoke out, and communicated... with gestures... that socialization... is important not only to fit the new members in a society, but also a process in which... they become human beings." Haralambos, M; Heald, R: *Uvod u sociologiju*, Globus, Zagreb, 1989, page 19.

<sup>46</sup> "Education is a social process... of introducing young members of a social community in social processes... which are of significance for their future activity in a society – primarily in work process, for social communication, harmonization of their behavior with other members of society..." *Sociološki leksikon*, Savremena administracija, Belgrade, 1982, page 415.

<sup>47</sup> Of Alexander of Macedon: "He could lead many thousands of men... rule millions, but he could not control his own temper... to recognize his own faults... but allowed his judgment to be soaked and drowned in praise. He lived in a frenzy of excitement and glory, and so loved war that his mind never knew an hour of peace." Durant, Will: *The Life of Greece*, Simon and Schuster, New York, 1939, page 540.

<sup>48</sup> Kant, Immanuel: *On Education*, D.C. Heath and Co., Boston, 1900, pages 11-20.

<sup>49</sup> "Man is the only one capable of... working... on his own formation as an individual and a personality... man doesn't not individually create himself completely free and unrestrained..." Lukić, Radomir: *Osnovi sociologije*, Naučna knjiga, Belgrade, 1970, pages 190-191.

implemented school instruction, which combines the educational process with the sense of nurture. The ideal of education<sup>50</sup> is conditioned by the socio-historical development, scientific and cultural accomplishments, and the accomplishments of technical civilization and economy...<sup>51</sup> Every society has the nurture and education which are considered to be the most adequate for the needs and the future of the community, and all great teachers educated in accordance with their own value, philosophical and political views. The finest example of *paideia*<sup>52</sup> theories and practices of nurture and education, is found in Athens of the classical period, where: "...*paideia* encompassed, demanded and presupposed nurture and education throughout entire life, which qualitatively brings it close to the *modern* and, to us close, concept of lifetime... education..."<sup>53</sup> Nurture and education enable people to achieve all the things man has achieved so far in his development, in a short period of time, and what matters the most for the new generations, they do not start from the very beginning and do not walk the same path. This way, human society changes, perfects and advances most successfully.

Education has its long historical journey through time, in the European sense since ancient Greece<sup>54</sup> till today. When it comes to systematic education and learning<sup>55</sup>, Plato's Academy<sup>56</sup> stands as an unparalleled ideal. Of course, we cannot forget the other giant and teacher of the world – Aristotle. In his school, the Lyceum, which he founded in Athens, he performed philosophical and scientific research and taught students. He spent twelve or thirteen years there, and wrote his most significant works. Lyceum

<sup>50</sup> As the ideal of nurture and education, we could use the Greek *paideia*: "Paideia (Greek) nurture of spirit and behavior. Notion that primarily signifies the process of education, and which includes the Greek ideal of development of the body and beauty of soul. It defines specific human mark, as well as the role of human personality in a social community."

<sup>51</sup> *Filozofski rječnik*, edited by Filipović Vladimir, Nakladni zavod matice Hrvatske, Zagreb, 1984, page 232.

<sup>52</sup> "Greeks called the supply of knowledge and culture to a child *paideia*... Paideia refers to learning from family and friends, from the agora, symposium and festivals, and from school teachers..." Hibler, Richard W: *Life and Learning in Ancient Athens*, University Press of America, Lanham/New York/London, 1988, pages 60-61.

<sup>53</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, pages 12-13.

<sup>54</sup> "No one in philosophy can reach the stellar peaks of the Wise, until he turns to the thoughts and ideas of the Old, not to... needlessly repeat them, but to find a fertile starting point for their spiritual flight and reaching... excellent knowledges in them." Kajtez, Ilija: *Čovek i tajna*, Dobrotoljublje, Belgrade, 2015, pages 280-281.

<sup>55</sup> "Judging by the level of intentionality of learning, we have willful (conscious) and unwilling (unconscious) learning... Willful learning is primarily tied to various forms of systematic and planned learning, like the one we find in schools... The totality of knowledge acquired by a man in his lifetime... is immense – from knowing his own name and surname, to mastering the most complicated theoretical notions and cognitions. This type of knowledge includes the knowledge of social norms... and an entire string of professional and other knowledges." Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, page 81.

<sup>56</sup> Plato's Academy lasted for more than nine centuries (916 years). It was organized as a real university, with appropriate buildings, areas for teaching and discussion, but also with a hall for guests and travelers. It had its gymnasium, or a training ground for strengthening the body, and at the entrance there was a sign "Let no one ignorant of geometry enter." Women were able to attend the Academy. Students were humble and moderate in eating, drinking and behavior, and wore simple clothes. Students and teachers ate together. "Academy replaced his family, which he never started, and his practical-political work in Athens, which he had to abandon... Academy... organized in the model of Pythagorean brotherhood, with the aim of nurturing and educating a new generation, new aristocracy, not by birth, but by spirit." Đurić, Miloš: *Istorija helenske književnosti*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1990, page 528.

gained a high reputation of an esteemed school in that period, perhaps the best school of the time. "His school was a specific compound of high-school instruction and scientifically-philosophical research,<sup>57</sup> and can thus be regarded as one of the models upon which all later university institutions were based."<sup>58</sup> It continued in a different way in the new age: "In... industrial societies the state ensures education as the right of every citizen.<sup>59</sup> For that purpose, formal institutions-schools are organized.<sup>60</sup> Professional staff works in them... teachers and lecturers. State schooling began... in Britain... in 1870... with which the state took responsibility for primary education... It wasn't until 1918. that second level education became obligatory... Everything is... followed by the constant expansion of higher schooling. Education is one of the highest growing industries in the last 100 years."<sup>61</sup> Education, like all other areas of the society, is experiencing sudden change lately.<sup>62</sup> Giddens states that the British Open University (1971.) was the first to use television in distance learning. This university's programs are broadcasted by the BBC, early in the morning and late at night. That was the beginning. Now we have distance learning via internet, which reached certain proportions,<sup>63</sup> and has its lacks and advantages.<sup>64</sup> Still, Giddens claims that: "Schools play a key role in socialization of children, provide equal opportunities for all, create capable work force, and informed and

<sup>57</sup> "Science and philosophy still haven't been separated to him, they... for a whole. For Aristotle, philosophy is a totality of knowledge, totality which includes science." Petronijević, Branislav: *Od Zenona do Bergsona*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1998, page 83.

<sup>58</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 281.

<sup>59</sup> Hippias (sophists) advocates equality of women, because they are denied the right to have spiritual education, because Hippias desires equality and kinship to include all who bare human form.

<sup>60</sup> Schools history is long and: "Besides more or less informal or irregular educational endeavors and contents, which sophists and Socrates offered to many, there were institutions which could be considered schools, and which were mostly, or partially, intended for adult citizens, whether it is a school of rhetoric... of a writer, orator, educator and teacher Isocrates, or more famous philosophical schools... (meaning, of course, Plato's Academy, Aristotle's peripatetic Lyceum, Cynic school...)" Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 113.

<sup>61</sup> Haralambos, M; Heald, R: *Uvod u sociologiju*, Globus, Zagreb, 1989, page 172.

<sup>62</sup> "As in many other areas of modern society, economy and information technology primarily cause changes in education. Commercialization and marketing in education are a reflection of an increasingly powerful influence of globalization. Schools are in the process of "reengineering" "almost in the same way businesses are." Giddens, Anthony: *Sociologija*, Ekonomski Faculty of Economy, Belgrade, 2006, page 516.

<sup>63</sup> "This approach was, and is, being pioneered by the University of Phoenix in the United States. Founded in 1989... it cannot boast a grassy campus, a sprawling library, a football team or a student centre. The 68,000 students enrolled at the university meet and interact predominantly across the Internet – the University of Phoenix's 'online campus' – or at one of more than 50 'learning centres' located in large cities throughout North America... Students complete the required work according to their own schedules - they can access the 'electronic classroom' at any hour of day or night - and instructors mark assignments and return them to students with comments... The flexibility and convenience of Internet-based learning cannot be denied, but the approach is not without its critics. Many argue that there is no substitute for face-to-face learning in a truly interactive environment with other students." Giddens, Anthony: *Sociology*, 6<sup>th</sup> edition, Polity Press, Cambridge, 2009, pages 875-876.

<sup>64</sup> "...But in their traditional form – when they complete the set tasks on their own, and then send them to teachers for evaluation – distance learning demands high levels of responsibility and self-motivation in order to produce results. When faced with a problem, students don't have anyone to turn to for help. In such situations, large number of students ends up disappointed and quits school." Giddens, Anthony: *Sociologija*, Ekonomski Faculty of Economy, Belgrade, 2006, page 510.

active citizens.”<sup>65</sup> Today, “both from the standpoint of an individual and of a social community, the need has grown for education and learning to be as powerful means as possible, with which man is enabled to continuously respond to events and adjust to changes in the environment, these changes, obviously in the modern world, seriously affect all aspects of individual’s life, increasingly fast and more dramatic. From personal to professional subjects.”<sup>66</sup> The same author continues: “In the time in which knowledge and information are in the very center of every activity, in which an explosion of knowledge is taking place,<sup>67</sup> in which the industry of knowledge is rapidly developing, every society and every state must transform itself into a society of learning, if it wishes to survive.”<sup>68</sup>

## Sociologists on education and nurture

*“As man reaches a higher step, he needs stronger restrictions to restrain his capriciousness.”*

(Gustav Freytag)

*“The greater the power, the more terrible its responsibility.”* (Dostoyevsky)

*“In a state in which majority of citizens loaf, no significant deeds can be born”* (Machiavelli)

Education and nurture are an important subject of many social sciences. Sociology, as the most general science of society is very interested in studying nurture and education.<sup>69</sup> However, every movement in sociology sees education from its own angle, and attributes different importance to many functions of education in society. For functionalists, the main question is – what are the functions of education for society as a whole? This leads us to determining the contribution of education to sustaining “consensus of values and social solidarity.” Educations, functionalists think, ensures the connection between an individual and society. Functionalistic view boils down to a positive view, and a contribution to sustaining the social system. Emile Durkheim (1858-1917.) wrote that the main function of education is to transference of norms and values of a society.<sup>70</sup> He claims that: “society can only survive if a sufficient level of homogeneity exists among its members; education... strengthens this homogeneity, consolidates it in a child...

<sup>65</sup> Giddens, Anthony: *Sociologija*, Ekonomski Faculty of Economy, Belgrade, 2006, page 513.

<sup>66</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 305.

<sup>67</sup> “One of the main characteristics of the development of modern world is a sudden *cumulation of newer and newer scientific and technical discoveries*, and their application in social practice. However, whilst the scientifically-technological progress has... an extremely cumulative character... at the same time, in the area of social and moral life of society, we see nothing of a kind. Here, it seems, *man cannot cumulate gained knowledge*... discrepancy between technical and social education of humanity is threatening not only with war cataclysms... but devastation of natural environment... Rationalistic philosophy of the new age has created, among other things, a belief that *using proper education of people, all problems humanity faces can be solved*... Until now... the focus of educational process was on education... Nurturing component remained neglected...” Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, page 319.

<sup>68</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, pages 319-320.

<sup>69</sup> *Sociology of nurture and education* is a sociological discipline which deals with: 1) examining a broader socio-historical and cultural conditionality of socialization, nurture and education process, and 2) examining the inner structure of the process of socialization, nurture and education, as social phenomenon.

<sup>70</sup> An important task of education for any society is to recast a mass of individuals into a social whole

important similarities which collective life demands."<sup>71</sup> Without these "important similarities", cooperation, social solidarity and social life itself wouldn't be possible. This solidarity includes commitment to society, a sense of belonging, and the understanding that a social unit is more important than an individual<sup>72</sup> because "society sees further and better than an individual<sup>73</sup>." Talcott Parsons (1902-1979.) claims that after primary socialization<sup>74</sup> within the family, comes school as "the focal agent of socialization" and it represents a bridge between family and society. "... Parsons proves that school... society in a miniature... By reflecting the functioning of society as a whole, school prepares the young... for their adult roles... school nurtures young men using core values of society. Parsons... claims... principles which function in a broader society are reflected in school principles. Parsons considers that schools... distribute students' talents, skills and abilities to jobs for which they are most suitable, by evaluating them. School is... understood as the principal mechanism of distribution of roles. Like Durkheim, Parsons also almost completely neglects that the values transferred by the educational system could be the values of the ruling minority,<sup>75</sup> not society as a whole."<sup>76</sup> Some other authors, like Parsons, understand education as a way of distributing roles: "Kingsley Davis and Wilbert E. Moore... connect the school system with the system of social stratification more directly. They see stratification as a mechanism which places the most gifted and most capable members of society in... positions which are functionally most important for society... school system sieves, sorts and evaluates individuals based on... talent and abilities..."<sup>77</sup> There are many justifiable objections to such claims. Functionalists see functions of schooling in: transference of norms and values of society;<sup>78</sup> preparation of the young for the roles of adults, selection of young people based on talent and abilities, and insuring knowledge and skills for social work.

The standpoint of progressive liberal thinkers of the role education has in the modern democratic society is that it encourages personal development and self-fulfillment of each student. It encourages individuals to completely develop their intellectual, physical,

<sup>71</sup> Taken from: Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 173.

<sup>72</sup> "Durkheim claims that: "a child, in order to become dedicated and connected to society, must feel something real, alive and powerful in it, something that dominates personality, and to which it owes the best part of itself." *Ibid*.

<sup>73</sup> Parsons thinks that school prepares a child for later social role, and that education is an expression of social system. Likewise, he claims that school is an important social institution for social promotion of children and altering their social position which individuals gained by birth. Parsons sees the social role of school very positive, and for him school means equality of chances and opportunity for emancipation of each individual.

<sup>74</sup> "Charles H. Cooley (1864-1929) in his work (*Social organization*) ... tends to determine the main types of primary groups...: "The most important spheres of this intimate connection and cooperation... are family, children's playground and the neighborhood or group of adults in a community. They are practically universal, and belong to all of the ages, and all levels of development; thus, they are the main foundation of what is universal in human nature and human ideals"...primary group is not just love and harmony..." Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, pages 32-33.

<sup>75</sup> "Limited men claim the highest positions... how to stand such a sight!" (Confucius).

<sup>76</sup> Taken from: Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 175.

<sup>77</sup> Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 176.

<sup>78</sup> "Mass education, based on... taught in the schools, is the main means whereby a large-scale society can be organized and kept unified." Giddens, Anthony: *Sociology*, 6<sup>th</sup> edition, Polity Press, Cambridge, 2009, page 1035.

emotional and spiritual talents.<sup>79</sup> Educational *system* of ancient Athens<sup>80</sup> included mental, moral, aesthetic and physical education. It can be said that the liberals go so far in their optimism, that they achieve the Greek ideal of education in new circumstances: "Athens built a school system which corresponded with its ideals and needs, and that school system further improved Athenian social, state, cultural community, and elevated it to levels of overall development, which was unparalleled at the time."<sup>81</sup> In Athens: "...special attention is paid to education... and ... construction of character and good, morally correct conduct is always in focus... Hibler<sup>82</sup> notes that the term arete, as the highest perfection of Greek character includes: manliness... nobleness, courage, successfulness... Boy's successful development in physical sense, will also always be kept in mind, not only mental and moral."<sup>83</sup> Following this apologetic and optimistic view of education, some consider and believe that education can create an equal and fair society.<sup>84</sup> In 1960. USA President Lyndon B. Johnson said: "The answer to all our national problems comes down to one word – education."<sup>85</sup> However, we should keep in mind that education is a segment of society, not the other way around, even though it can have a very positive recurrent influence on overall relations in society itself, it cannot essentially, pivotally and entirely change them. Problems of a society, primarily, lie in society itself, of which education is an important segment. Marxist view of education differs from the functionalistic, because Marxism studies capitalism to destroy it, and functionalism to upgrade it evolutionally. French philosopher Louis Althusser (1918-1990.) offers an analysis of education from a Marxist standpoint. He considers that

<sup>79</sup> However, there are studies and opinions which are opposed to this optimistic image: "Samuel Bowles and Herbert Gintis if capitalism is to survive and succeed, it depends on... obedient and disciplined work force. They established that lower grades are connected with creativity, aggression and independence and... that school punishes such traits. They discovered a series of characteristics which... point out to "susceptibility and discipline" tied to high grades, and concluded that such traits are rewarded by the school. Those traits include persistence, consistency and accuracy... Bowls and... Gintis prove that "schools cherish types of personal development which are compatible with relations of domination and susceptibility..." Schools are organized on a hierarchical principle of authority and control.... Bowles and... Gintis conclude that "education reproduces inequality, justifying privilegedes..." Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. pages 181-183.

<sup>80</sup> "Athens is a stellar arch of all philosophical values. Athens is not a city – it is a stellar metaphor of a winged, wise and wondering man. It seems as if semi-Gods, not men, walked the streets of Athens. A though of immeasurable Universe constantly flowed in Athens..." Kajtez, Ilija: *Čovek i tajna*, Dobrotoljublje, Belgrade, 2015, pages 280-281.

<sup>81</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 69.

<sup>82</sup> Hibler, Richard W: *Life and Learning in Ancient Athens*, University Press of America, Lanham/New York/London, 1988, pages 63-64.

<sup>83</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 65.

<sup>84</sup> However, "Pierre Bourdieu claims that the main role of educational system is "social function of elimination." This refers to the elimination of members of the working class from higher levels of education. Students who come from a working class are aware what awaits them in life... that everything is against them. Their views on education are shaped by "objective circumstances" and those views will hold on "until realistic chances of success are slim." Those arguments encouraged Pierre Bourdieu to conclude that the main role of schooling in society is to contribute to social reproduction – reproduction of relations of power and privilege among social classes. Social inequality is reproduced in school system..." Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. pages 204. and 213.

<sup>85</sup> Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page 178.

education in capitalism reflect the existing production relations and serves the interests of the ruling class.<sup>86</sup> He proves that reproduction of work force includes two processes: first, reproduction of skills needed for a successful work power, and second, reproduction of the ruling class ideology. Reproduction of work force requires not only reproduction of skill, but also the reproduction of its susceptibility to the ruling ideology, which is achieved through a series of "state's ideological apparatus" which include mass media, legislation, religion and schooling. "In a pre-capitalistic society, Althusser understood church as a dominant ideological state's apparatus. In a capitalistic society, it is mostly replaced by the educational system. School system<sup>87</sup> not only transfers the general ideology of the ruling class which approves of the capitalistic system and legitimizes it, it also reproduces the behavior required of main groups in work division."<sup>88</sup> Besides the apologetic, moderate and balanced intellections of the place, role and meaning of education in society, there are those which are radically negative. In such a way Ivan Illich (1926-2002.) in his work characteristically named *Deschooling society* (1971.) expresses a merciless critique of the educational system, which is, according to him, the core of the modern industrial society's problem.<sup>89</sup> "Schools are... the most important and the most significant phase in creation of an imbecile, conformist and easy to manipulate citizen. Individual is taught to conform to authorities<sup>90</sup> in schools, to accept alienation, to use services of institutions... and to forget how to think on his own. Nurtured in way so that those in power know what is best for him, an individual becomes dependent of directives of government, bureaucratic organization and expert bodies."<sup>91</sup> This book is a radical critique of educational practices in modern societies.<sup>92</sup> Illich advocated an education

<sup>86</sup> "The ruling system of nurture and education serves to strengthen and regenerate the ruling class. Social inequality... is repeated in the inequality of educational opportunities." Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, page 166.

<sup>87</sup> "School plays an exceptionally important role in our civilization... school is the first organized social institution... School is an institution which focuses on providing the young generation with those knowledges, skill and habits which are... needed for child's inclusion in... social life... A child encounters *social discipline* and social authority for the first time in school... In modern civilization, school system is one of the main paths of *social mobility*..." Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, page 89.

<sup>88</sup> Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 180.

<sup>89</sup> Wilde also criticizes education, from a philosophical and aesthetical position: "...that we all try so hard to excessively educate ourselves. In the ruthless struggle for survival, we wish to possess something that lasts, and we fill our heads with nonsense and facts with silly hope of keeping our position." Wilde, Oscar: *Slika Dorijana Greja*, NID Company, "Novosti", a.d. Belgrade, 2011, page 17, or "The more ignorant a man is, the more content he becomes, and the world admires him. Why would then a man love real education? First, it costs a lot; secondly, everyone avoids him because of his education, and he also avoids everyone else..." Erasmus Desiderius, *The Praise of Folly*, page 49.

<sup>90</sup> "A classical education is almost entirely critical: a boy learns to avoid mistakes, and to despise those who commit them. This tends to produce a kind of cold correctness, in which originality is replaced by respect for authority." Russel, Bertrand: *On Education*, Routledge, London, 2003. page 94.

<sup>91</sup> Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 187.

<sup>92</sup> "He (Illich) argued that schools have developed to cope with four basic tasks: the provision of custodial care, the distribution of people within occupational roles, the learning of dominant values and the acquisition of socially approved skills and knowledge. Schools... have become custodial organizations because attendance is compulsory and young people are therefore 'kept off the streets' between early childhood and their entry into work. Much is learned in school that has nothing to do with the formal content of lessons. Schools tend to inculcate... an uncritical acceptance of the existing social order – by the nature of the discipline and regimentation they involve.

The hidden curriculum teaches young people that their role in life is 'to know their place and to sit still in it'" Giddens, Anthony: *Sociology*, 6<sup>th</sup> edition, Polity Press, Cambridge, 2009, page 837.



which would be guided by pupils and students themselves, and which would be supported with informal human relations.

Besides the mentioned approaches to the phenomenon of education and nurture, we also have the interactionist view<sup>93</sup>, whose core of human and social approach is that a man constructs social reality. Human activity is not only and simply shaped by external social forces which affect the human. His behavior is nor a mere reaction to the general guidelines of culture or pressures of stratification system. From an interactionist point of view, a man becomes the author of personal behavior, instead passively reacting to social coercion. Speaking from the standpoint of an interactionist, success and failure of students in school<sup>94</sup> is a result of interaction situations and meaning which are created, developed and negotiated in school situations. They see school as a self-sufficient institution, in which all contradictions and problems of education and nurture can be solved. We think that this is a one-sided approach, to say at least, because it forgets that education, school, teachers and students are all parts of their social environment. British sociologist, Nell Keddie rejects the positivistic approach to education, and thinks that, in order to understand and interpret success (failure) in schooling, we must analyze processes of interaction in the classroom. Sociologists must investigate "modes in which students and teachers interpret situation in schooling, and what meanings they attribute to them."<sup>95</sup> However, it must be known that people are products of circumstances and nurture, but that they also change circumstances and that the educator himself must be educated<sup>96</sup> and that there is a dialectic relationship between society and man,<sup>97</sup> and that society creates man, but also man creates society.<sup>98</sup>

<sup>93</sup> Radomir Lukić writes that interaction is – mutual action, interrelation of individuals or groups in a society, which, in some sociological theories, explains all social phenomenon. Such theories neglect the joint action of humans and influence of other factors (not just human behavior) on people, i.e. society.

<sup>94</sup> Dr. Fox's effect is defined as a phenomenon of the teacher's expressiveness, attractiveness and enthusiasm having a crucial influence on student's evaluation of the quality of teaching. Namely, an enthusiastic teacher, who induces affection and sympathy with his speech and behavior, can "elicit" good evaluations of his teaching from his students, even when his teachings have no valid content. Nevertheless, research which followed (Marsh and Ware, 1982.) showed that expressiveness, attractiveness and enthusiasm of a teacher not only contributes to a better evaluation of the teacher and his teachings, but also, under certain circumstances, significantly improve performance of students in their exams. According to: Marsh, H. W: *Experimental Manipulation of University Student Motivation and Their Effect on Examination Performance*, British Journal of educational Psychology (1984).

<sup>95</sup> Haralambos, Michael; Heald, Robin: *Uvod u sociologiju*, Globus, Zagreb, 1989. page. 206.

<sup>96</sup> "Childhood is unknown... The wisest men concentrate on what it is important for men to know without considering what children are in a condition to learn. They are always seeking the man in the child... Begin, then, by studying your pupils better. For most assuredly you do not know them at all." Jean-Jacques Rousseau: *Emile or on Education*, Basic Books, New York, 1979, pages 33-34.

<sup>97</sup> "...man is a being of need... dissatisfied being...mobile being, restless being, being in search. Because he is never content, because he is always driven to create new, more and better, for he never satisfies with the achieved... small. Progress is a typical human trade... The ultimate initiator of all social motion, therefore, is a man, not a man as a being equal to others, but a man as a particular being..." Lukić, Radomir: *Osnovi sociologije*, Naučna knjiga, Belgrade, 1970, pages 185-186.

<sup>98</sup> "...As society itself creates a man as a man, so does he creates society." Marx, Karl; Engels, Friedrich: *Rani radovi*, Naprijed, Zagreb 1989, page 279.

## Philosophers and the teachers calling

"It is not good either to forget the questions that philosophy asks, or to persuade ourselves that we have found indubitable answers to them" (Bertrand Russel)

"Philosopher is... the supreme judge of a school... Humanity, on the other hand, develops only due to the respect of rare, great..." (Nietzsche)

"Whoever undertakes to set himself up as a judge of Truth and Knowledge is shipwrecked by the laughter of the gods." (Albert Einstein)

Philosophy is one of the most valuable gifts that humans gave themselves, besides faith, hope, moral, utopia, art, culture<sup>99</sup> and science.<sup>100</sup> Why is philosophy so important<sup>101</sup> for the overall human kind: "In philosophy, answers are not as important as the questions! Who am I, what can I know, how should I live. Answers that philosophy provides to these eternal, "damned", border-line, or final question... cannot be bypassed even when their truth and sense is denied."<sup>102</sup> Philosophy enables a person to deepen spirituality, critically perceive his own mind<sup>103</sup>, and creatively enlighten himself<sup>104</sup> through philosophical speculations and the course of overall philosophical education, using which he reaches the original knowledge of the essence of life, or the first cause of the world, thus capacitating himself for any social, historical and individual knowledge. Admittedly, philosophers and the truth can be observed as Nietzsche did: "Plato, as a war prisoner, is displayed on the slave market – why on Earth would people need philosophers? It ought to be unriddled why they need the truth."<sup>105</sup> Nietzsche considers that: "Value of philosophy... does not lie in the sphere of cognition, but in the *sphere of life: will for existence uses philosophy* for the purpose of a higher form of existence."<sup>106</sup> Socrates was not in favor of school philosophy, but a philosophy which is lived, like Spinoza, Kierkegaard, Schopenhauer, Pythagoras<sup>107</sup>,

<sup>99</sup> "Problem of culture was seldom accurately understood... Its goal aims above earthly happiness: creation of great deeds is its goal." Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 19.

<sup>100</sup> "It is not about negating science, but *overcoming* it... by its goals and methods, it completely depends on philosophical views... But, ruling philosophy also has to contemplate the problem to which the gay science can develop: it is up to philosophy to determine the value! ...Proof of barbaric results of science. They are easily lost in the service of "practical interests."" Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 11.

<sup>101</sup> "In moments we feel the ground beneath our feet begins to crumble, and our hands are in vain reaching for the sky, we instinctively hang on to something we didn't know we had until then. Buried experiences and habits of our ancestors emerge in front of us, which we never suspected of living in side of us." Andrić, Ivo: *Omerpaša Latas*, Sarajevo, 1981, page 148.

<sup>102</sup> Šušnjić, Đuro: *Drama razumevanja*, Čigolja štampa, Belgrade, 2004, page 203.

<sup>103</sup> "My general task: to demonstrate how life, philosophy and art can engage in a mutual spiritual... relationship, without philosophy becoming superficial or life of philosophers mendacious." Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 101.

<sup>104</sup> "... Knowing – means doing everything governed by your own reason, not depending on role model or constantly adducing your teacher... One who follows in the heels of another, finds nothing... Truth is accessible to all..." (Seneca).

<sup>105</sup> Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 95.

<sup>106</sup> *Ibid.* page 21.

<sup>107</sup> "The doctrines of Pythagoras were given forth as a kind of revealed truth...the followers of Pythagoras were content to accept the authority of the master, and if challenged to answer: "Autos epha", "The master said it", Clarke, M. L.: *Higer Education in the Ancient World*, Routledge & Kegan Paul, London 1971, page 58.

Nietzsche, and Heraclitus. What is the relation between philosophy (philosophers) and teachers calling, or what man can be the teacher of human kind? Planet Earth remembers many excellent and different teachers, founders, leaders and educators of the world. There are immortal sages, rulers and teachers of nations<sup>108</sup>, states, armies, churches and philosophical schools. “For the Greeks, Homer<sup>109</sup> ... was important as an educator... as the basis and content of moral teaching,<sup>110</sup> because he provides examples of noble ruling which are to be admired and respected.”<sup>111</sup> For Greeks, Homeric epics were what *The Bible* is for Christians. Teachers of the world are also giants of the world.<sup>112</sup> The founder of sophists, Protagoras, dedicates himself to education, nurture and capacitating young people to become successful and useful members of society.<sup>113</sup> He realized how important education and nurture are for a man, and how powerful a mean nurture is, for a reasonable organization of human community. “... One who teaches people virtues and political wisdom is a *sophist*, as a “teacher of education and virtue”, in other words, a wise man as a mediator between life according to laws and instinctive life: one who learns from him, will go home a better man, after spending the first day with him, and tomorrow the same. And he will progress equally every day.”<sup>114</sup> Why are philosophers<sup>115</sup> the greatest teachers of the world?<sup>116</sup> What is exceptional and eternal about philosophers, is the fact that they consider ontological issues, which are not tied to transience, what is now, here, or is modern, philosophers deal with what lies in the core of a man as a man in general, and for this reason they are unexcelled teachers of the world. Because philosophy is the most sublime of human sciences, and reaches the highest arches of meaning, and those who are founders of philosophical sciences and cognitions are the greatest teachers of the world: “...and the conquest of Greece (by Macedonians) was precisely what was needed in order

<sup>108</sup> “Yes, truly, it is a great thing for a Nation that it get an articulate voice; that it produce a man who will speak-forth melodiously what the heart of it means!” Carlyle, Thomas, *Heroes and Hero Worship*, Henry Altemus, Philadelphia, 1899, page 153.

<sup>109</sup> For Serbs, it is Saint Sava. Everything great, significant and important in our kind bears Sava’s name.

<sup>110</sup> Socrates warns: “I am that gadfly which God has given the state and all day long and in all places am always fastening upon you, arousing and persuading and reproaching you. And as you will not easily find another like me, I would advise you to spare me.”

<sup>111</sup> Beck, Frederick A. G: *Greek Education 450–350 B. C*, Methuen & Co. Ltd, London, 1964, page 117.

<sup>112</sup> Confucius (551-479. BC) is an example – he is a sage, a philosopher, Chinese Socrates, a great teacher. “It is impossible to eclipse Confucius’s name. Compared to him, other sages are but hills and monticules which are easy to cross... No one can match the teacher...” Confucius, *Misli*, Zlatna knjiga, Leskovac, 2009, page 126.

<sup>113</sup> “...such in nurture, bad ought to be changed to good. Doctor changes with medication, sophist with oration.” Plato, *Fileb I Teetet*, Naprijed, Zagreb, 1979, 116d and 176a.

<sup>114</sup> Đurić, Miloš: *Istorija helenske književnosti*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1990, page 184.

<sup>115</sup> “...All philosophers... persistently initiate the “painful mystery of existence” and in repeating deep problems and providing excellent solutions, all of the inevitability, sublimity and justification of the value of philosophy is demonstrated.... Philosophers are those men who are always on the path of deep questions and fertile seeking...” Kajtez, Ilija: *Čovek i tajna*, Dobrotoljublje, Belgrade, 2015, page 281.

<sup>116</sup> “What must a philosopher do? In the midst of ant-like crawling, he must emphasize the problem of existence /Dasein/, especially eternal problems... Philosopher ought to *cognize what make necessity*... Philosophy should reflect the *highest spiritual flow*, from one century to another: and thus the eternal fertility of all great things... For science, nothing is great or little – but for philosophy! This is the principle of evaluating the value of science.” Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, pages 11-13.

to make the Greeks set about their appointed task of educating the world, instead of wasting their powers in babblings and squabbling among themselves."<sup>117</sup> Philosophy<sup>118</sup> wonders about the meaning of human life and all the values that are to lead this life. Hasn't Boethius (480-525.) demonstrated this with his life, because the main problem, for him, was the meaning and value of human life. While he was awaiting the execution of his death penalty in a prison in Pavia, in 524, he wrote the piece *The Consolation of Philosophy*. Aren't all the great philosophers and other thinkers of the world (Socrates, Aquinas, Dostoyevsky, Schopenhauer, Tolstoy, Kierkegaard, Goethe, Heidegger)<sup>119</sup> on the same path? Nietzsche says: "We are now given a higher form of life... philosophy," and writes: "Philosopher... fights for understanding the world with self-consciousness..."<sup>120</sup> "Philosopher cognizes by creating and creates by cognizing... Heraclitus will never grow old..."<sup>121</sup> We use the thoughts of great Nietzsche once more, to see how important philosophy truly is.<sup>122</sup> There are few giants of the world: "Great thinkers are lonely peaks,<sup>123</sup> and they are present in every time, not just in philosophy, but in religion, art and science. K. Jaspers in *Way to wisdom, introduction to philosophy* says: "... there are climaxes, Suns in swarm of stars"... all Greek philosophers were aristocrats of spirit..."<sup>124</sup> What makes a man a great teacher of the world? A teacher must always be a moral role model for his students<sup>125</sup>, he must lead them<sup>126</sup> in good, and never leave them on their own in evil,<sup>127</sup> and

<sup>117</sup> Davidson, Thomas: *The Education of the Greek People and its influence on civilization*, D. Appleton and Company, New York, 1894, page 144.

<sup>118</sup> "A philosopher is inexperienced in all common things, and in thought and habits he completely differs from the people... He spends most of his life and youth reading books... in sleepless nights, worries and sweat..." Erasmus Desiderius: *Pohvala ludosti*, Plato, Belgrade, 2012, pages 28. and 42.

<sup>119</sup> "Philosophy is no trick to catch the public; it is not devised for show. It is a matter, not of words, but of facts. It is not pursued in order that the day may yield some amusement before it is spent, or that our leisure may be relieved of a tedium that irks us. It moulds and constructs the soul; it orders our life, guides our conduct, shows us what we should do and what we should leave undone; it sits at the helm and directs our course as we waver amid uncertainties. Without it, no one can live fearlessly or in peace of mind. Countless things that happen every hour call for advice; and such advice is to be sought in philosophy." Seneca, *Moral letters to Lucilius*, Letter 16.

<sup>120</sup> Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 60.

<sup>121</sup> *Ibid.* page 7.

<sup>122</sup> "History of the world is the shortest once measured by significant philosophical discoveries... We observe buoyance and creative force with the Greeks, the kind which we see nowhere else... Man discovers very slowly how endlessly complex the world truly is... Man knows the world as much as he knows himself..." Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 36

<sup>123</sup> "Great passions are for the great of soul, and great events can be seen only by those who are on a level with them... High thoughts and high emotions are by their very existence isolated... The sea, as Euripides says in one of his plays about Iphigeneia, washes away the stains and wounds of the world." Oscar Wilde, *De profundis*, The modern library, New York.

<sup>124</sup> Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, page 200.

<sup>125</sup> Wise Dostoyevsky claims: "Man lives of good example", *Tako je govorio Dostojevski*, edited by Ivanović, Slavko: Neven, Novi Sad, 2007, page 137, or "Improve yourself following the ideal of a noble man." (Confucius)

<sup>126</sup> "Social development largely depends on the fact that great and ingenious people are much needed to understand such development, for they are the source of inventions which spread, by imitation, in a geometrical progression." Zvonarević, Mladen: *Socijalna psihologija*, Školska knjiga, Zagreb, 1985, page 27.

<sup>127</sup> To do so, a teacher must meet five principles of moral leadership: "respecting others, serving others, fair conduct, displaying sincerity and building community." According to: Northouse, P.G: *Liderstvo, teorija i praksa*, IV edition, Data status, Belgrade, 2008, page 252.

in order to be a leader of men, one must respect and love others<sup>128</sup>, he must be righteous<sup>129</sup> and he must care for building his community.<sup>130</sup> Teacher must reach the level of self-growth so he can unselfishly gift love, truthfulness and trust to his students<sup>131</sup> and in the same time, not expect the same in return.<sup>132</sup> A stoic and Christian ideal. Moral ideals of teachers have a great role in social life of men, and imitation is one of important mechanisms of interaction, about which Gabriel Tarde (1843-1904.) eloquently speaks. True philosophers and teachers, heads and leaders of a community serve other people, put wellbeing of others above their own, striving to contribute to common good.<sup>133</sup> Followers are ready to be faithful devotees<sup>134</sup> and make sacrifices for their teacher, because their teacher would do the same for them. Students and teachers make one inseparable and comprehensive structure of magnitude and glory.<sup>135</sup> Do we not find the essence of leadership in the *Holy Scripture*: “whoever wants to become great among you must be your servant, and whoever wants to be first must be your slave.” (Matthew 20, 26-27). A teacher must live as a holy man<sup>136</sup> so he could be the educator of community. Pascal says: “... when all men live wrongly, we do not notice it, but as soon one becomes aware, and starts living a God pleasing life, it immediately becomes clear how wrongly others live. And others always persecute the one not living as they do.” All essential has

<sup>128</sup> “When wisdom has been profitless to me, philosophy barren, and the proverbs and phrases of those who have sought to give me consolation as dust and ashes in my mouth, the memory of that little, lovely, silent act of love has unsealed for me all the wells of pity... and brought me... into harmony with the wounded, broken, and great heart of the world.” Oscar Wilde, *De profundis*, The modern library, New York.

<sup>129</sup> Luciano de Crescenzo, writing of Socrates, states that one day, Critias, who became the leader of the Thirty tyrants, ordered Socrates and four other Athenians to bring democrat Leon from Salamis to Athens, so he could then sentence him to death. Instead obeying the order, Socrates returned home, as if nothing was said to him, even though he knew that failing to execute an order can cost him his life. Luckily for Socrates, Critias soon died. In *Apology*, Socrates himself explains this situation: “Then, however, I showed again, not in speech but in deed, that I do not even care about death in any way at all – if it is not too crude to say so — but that my whole care is to commit no unjust or impious deed.”

<sup>130</sup> “Only in a world of sincere men is unity possible; - and there, in the long run, it is as good as *certain*.” Carlyle, Thomas, *Heroes and Hero Worship*, Henry Altemus, Philadelphia, 1899, page 168.

<sup>131</sup> “Socrates taught almost 50 or 55 years... And thanks to a close, intimate atmosphere in a small group of students, a tight bond was created between students and teacher, a bond which lasted for years after finishing school, because former students had a deep respect of Socrates...” Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, pages 214-215.

<sup>132</sup> “I hold that love and knowledge are the two main requisites for right action... Love cannot exist as a duty: to tell a child that it ought to love its parents... Parents who wish to be loved must behave so as to elicit love..” Russel, Bertrand: *On Education*, Routledge, London, 2003 page 124.

<sup>133</sup> “Path of a teacher comes down to this: rigor on themselves, softness to others” Confucius, *Misli*, Zlatna knjiga, Leskovac, 2009, page 22.

<sup>134</sup> The influence of Socrates’s personality on young Plato was so immense, that the young student made a crucial life decision, and completely dedicated himself to philosophy.

<sup>135</sup> “The relation of Plato to Socrates and Aristotle to Plato, is the same as the relation of Alexander to Aristotle. These four great men represent a logical chain of development. Because, if Socrates... is the lush stem, Plato the lavish flower, and Aristotle the ripe fruit of Hellenic philosophy, then Alexander is the spreader and sower of that fruit across the entire ecumene.” Đurić, Miloš: *Istorija helenske etike*, BIGZ, Belgrade, 1976, page 374.

<sup>136</sup> “He (Christ) saw that love was the first secret of the world for which the wise men had been looking, and that it was only through love that one could approach either the heart of the leper or the feet of God... love is more beautiful than hate... pain (is) for the beautiful soul.” Oscar Wilde, *De profundis*, The modern library, New York.

already been said by men.<sup>137</sup> The path of philosophers ought to be followed, their thoughts, kindness and wisdom ought to be creatively adapted to present time.

A genuine teacher is, in the broadest sense, in an unrepeatable manner, the good and diligent man who accepts this most important human calling with unselfish joy and gives himself to others,<sup>138</sup> his students and followers.<sup>139</sup> Confucius, after he turned sixty, without seeing his science accepted, educated his students, who were given duties to transfer his teaching. Teacher teaches how to accept the secret of life with his own life.<sup>140</sup> There are excellent teachers who best teach young generations without many words<sup>141</sup> and with the power of personal example, there are closed, thorough men who speak little, as if they are paying each spoken word with pure gold, and always act usefully and excellently,<sup>142</sup> and there are those peculiar educators who speak harmoniously and live sublimely and morally.

To be a teacher of new generations means existing in life's mainstream and source. To teach others, always means to drink from the glass of life with each student.<sup>143</sup> To be a true teacher means giving a young being full attention, commitment and love<sup>144</sup> and be honest with life, yourself and others, because deceptions, deceits and lies don't work with young people.<sup>145</sup> Teacher shows he true face to the ones listening to him at all

<sup>137</sup> Meša Selimović writes: "It is my profound belief that human existential, essential characteristics do not change throughout centuries. Their love, hate, jealousy, envy, will for power remain the same... Only social relations change, but not so significantly and finally..."

<sup>138</sup> Socrates says, in his trial: "...My whole life I have neglected my interests, family and home. I have never strived for military ranks, nor civil medals. I was not involved in conspiracies nor other rebellions." "Thus Socrates spent his entire life in Athens having discussions." (Petronijević, B.)

<sup>139</sup> "Immanuel Kant... the first "professional" philosopher, because he sold knowledge of many philosophical disciplines and natural sciences: metaphysics, logic, ethics, pedagogy, anthropology, natural law, mathematics, physics, physical geography and mineralogy. What a synthetic mind... Kant's teaching calling begins in 1755. and lasts until his old age, 1796. (sometimes more than 16 classes a week). More than forty years! What inexhaustible energy, endless commitment to science and dedication to philosophy. Teacher of the world. There is much to be learned from philosophers." Kajtez, Ilija: *Mudrost i mač – filozofi o tajnama mira i rata*, MC Odbrana, Belgrade, 2012, page 371.

<sup>140</sup> "...example is all-powerful, and either strengthens or destroys good precepts" Kant, Immanuel: *On Education*, D.C. Heath and Co., Boston, 1900, page 45.

<sup>141</sup> "The great silent men! Looking round on the noisy inanity of the world, words with little meaning, actions with little worth, one loves to reflect on the great Empire of Silence. The noble silent men... They are the salt of the Earth... Empire of Silence: higher than the stars; deeper than the Kingdoms of Death! It alone is great; all else is small." Carlyle, Thomas, *Heroes and Hero Worship*, Henry Altemus, Philadelphia, 1899, page 298.

<sup>142</sup> Confucius says: "I would love so much not to speak... But if you didn't spoke, what would we, the humble students, be able to transfer? Teacher: Does the sky ever speaks... Why would the sky need to speak?"

<sup>143</sup> "Socrates was a rare man who thought his life and lived his thought... Socrates never gave lessons... but he spoke with others, different men, so they could both grow in spirit... Socrates became a trade mark of every intellectual thought, martyr of moral philosophy, and petrel of humanistic ethics. He was not made immortal by his life... but by his death. He laid down his life for truth..." Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, page 206.

<sup>144</sup> Tolstoy says: "Christ... taught that out of all things we do in life, only one is the light and human happiness, and that is our love for each other. He taught that we can only achieve happiness by serving others, not ourselves." Tolstoy, *Put u život*, II, Zlatna knjiga, Leskovac, 2009, page 33. or „Love is...a gift from the Heavens, the finest thing that Heaven gave us..." (Russel, B.)

<sup>145</sup> "To produce the habit of truthfulness should be one of the major aims of moral education... Parents who teach that lying is a sin, and who nevertheless are known to lie by their children, naturally lose all moral authority... Invariable truthfulness to a child reaps its reward in increased trust. The child has a natural tendency to believe what you say..." Russel, Bertrand: *On Education*, Routledge, London, 2003, pages 104-106.

times.<sup>146</sup> To be a teacher to someone else is, in a pristine way, the same as answering the call to life itself. Teaching depends on many personal, family, group and social causes, consequences, and historical conditions.<sup>147</sup> A teacher is a responsible being who constantly walks amidst personal consciousness, social duty, human weaknesses and professional obligations. Sophists were the first private teachers, who supported themselves by teaching,<sup>148</sup> and their: “Methodical eloquence, which they were able to convey to others as teachers of oratory<sup>149</sup>, brought them high fees...”<sup>150</sup> Socrates remained an educator and a teacher till his death. His student, Plato<sup>151</sup> too, as well as Plato’s student, Aristotle, also Kant and Hegel later on. Do we require greater names of philosophers-teachers?

What is a teacher’s calling or teacher’s profession? To understand what profession is, we will use the conception of S. P. Huntington, from his piece *The Soldier and The State*. Characteristics which differentiate profession as a special type of occupation are *expertise, responsibility and corporateness*, considers Huntington.<sup>152</sup> He claims that the essence of every profession lies in the differentiation of its subject of study, and acknowledging the limits of this subject within the overall framework of human activity and goal.<sup>153</sup> Men with specialized knowledge and skill in a significant area of human activity possess *expertise*.<sup>154</sup> Expertise is acquired through education, life and work experience.<sup>155</sup> Professional knowledge is intellectual in nature, and capable of

<sup>146</sup> “Everything can be said to a child... Children heal a man’s soul...” *Tako je govorio Dostojevski*, edited by Ivanović, Slavko: Neven, Novi Sad, 2007, page 28.

<sup>147</sup> “The meaning of life here on earth might be defined as consisting in this: To unfold your *self*, to work what thing you have the faculty for. It is a necessity for the human being, the first law of our existence.” Carlyle, Thomas, *Heroes and Hero Worship*, Henry Altemus, Philadelphia, 1899, page 299.

<sup>148</sup> It is said that sophists lived of their skills, and Socrates lived for his skill. What a difference!

<sup>149</sup> “Gorgias’s arrival to any city would be a real celebration, because he would achieve such success, that all citizens would start to “gorgiate”; People from all over would rush to hear the glorious orator, and many paid dearly, so that he would teach them the secret of his skill.” Đurić, Miloš: *Istorija helenske književnosti*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1990, page 196.

<sup>150</sup> Burhart, Jakov: *Povest grčke kulture I-IV* volume III, Izdavačka knjižnica Zorana Stojanovića – Dobra vest, Sremski Karlovci, Novi Sad, 1992. page 267.

<sup>151</sup> “Plato lived for about 80 years, and his last days of old age was spent in... research, writing and teaching at the Academy, so he became an example of a lifelong devotee... focused on seeking and knowing the mystery of the world. Until death hindered him, he continued his politically-pedagogical and philosophical work, studying like Solomon and teaching others like Socrates.” Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 239.

<sup>152</sup> Huntington, S.R.: *Vojnik i država*, Centar za studije Jugoistočne Evrope, Belgrade, 2004, pages 9-22 and 60-87.

<sup>153</sup> The thing that makes a teacher’s calling permanent in humankind history, is the need for education of young generations for the most responsible obligations, roles and duties in the future of a community.

<sup>154</sup> Social duties of the most gifted men are the greatest. Such callings in humankind are: teacher, statesman, priest, doctor, soldier and judge. Teacher’s calling is the most multitudinous, most important and most significant for a community, and crucial for its survival, growth and development. Everywhere you look, you will see a man constantly teaching something to someone else. Teacher’s calling is an issue of the first-order importance, for any community.

<sup>155</sup> A teacher is first and foremost an eternal and devoted student: “To be aware of the voids which need to be fulfilled, day to day, and to be capable of preserving what has been learned, month to month, means to love learning...” (Confucius)

preservation in writing.<sup>156</sup> It has a history, and such knowledge is necessary for sublimity and reputation of every profession. Professional expertise also has a dimension in breadth which is lacking in the normal trade, it is a segment of the cultural tradition of society, because the professional man can successfully apply his skill only when he is aware of this broader tradition of which he is a part. Most significant professions are components of education in society. Professional education consists of two phases: first, which includes a broad and general culture, and second, which includes skills and knowledges of the profession itself. General education is governed by educational institutions of society.<sup>157</sup> Huntington thinks that *responsibility* distinguishes every profession from other occupations, a member of a profession works in a specific social environment, and provides services, such as health care, justice, security, education, in all important areas which are necessary for the functioning of society. Every profession's client is the society, individual or collective.<sup>158</sup> A member of a profession has a responsibility to always provide service to society. Unquestioningly. Social responsibility<sup>159</sup> distinguishes the professional man from other experts with only intellectual skills. But the professional man can no longer practice if he refuses to accept his social responsibility: a physician ceases to be a physician if he uses his skills for antisocial purposes. The third principle of profession is *corporateness*. The members of a profession share a sense of organic unity and consciousness of themselves as a group apart from laymen.<sup>160</sup> We have seen in Huntington's book *The Soldier and The State*, that every significant social profession (including teaching) has its distinctiveness. Of course, there is also a common thing for all professions.

<sup>156</sup> With respect to all the mentioned professions which are, in our opinion, the most important in human kind, no profession is so connected to books and written sources, as a teacher's calling is. Book is the cradle of modern teaching. Immortal Socrates knew that a book does not speak, but we also know that a book is not silent. A book speaks wisely. Socrates, like Pythagoras, Buddha, Muhammad and Jesus, left no written record.

<sup>157</sup> It seems that this part is the most important, because the teacher's profession is presupposition and a necessary basis for any other profession, because all members of other professions gain the foundation, basis, ethical virtues and work skills in primary, basic levels of education. Many people who do not understand the essence and the secret of life believe that one can be a genuine doctor, statesman, priest, judge and soldier even without elementary and primary knowledge, that knowledge and spiritual vertical can be upgraded without firm intellectual basis and good foundation of culture. Kant speaks of the aim of nurture and the method of achieving such a goal: "*The general cultivation of the mental faculties, as distinguished from the cultivation of particular mental faculties.* — This aims at skill and perfection, and has not for its object the imparting of any particular knowledge, but the general strengthening of the mental faculties." Kant, Immanuel: *On Education*, D.C. Heath and Co., Boston, 1900, page 39.

<sup>158</sup> We must here emphasize that this refers, in the broadest sense, primarily to teacher's profession. A responsible community must take care of each and every of these levels of generality of education and nurture, because the holy Nikolaj Velimirović wisely warns: "Learn what you wish, and know what you can, but you must not learn one thing: to use your knowledge for evil. How many times it has been said: it is better not to know, than to know and misuse."

<sup>159</sup> That is something every teacher must always keep in mind, that the betterment of a community depends on his work and dedication to his calling, and that he must never demand for his effort only to be monetarily rewarded, of course, not completely disregarding such a type of a reward. Socially important work, which all teachers of the world do, can never be measured solely by economic, statistical and material indicators, criterions and productivity, because of its gifts, ranges and values. Teacher's calling is the first concern of the state's leadership.

<sup>160</sup> It ought to be kept in mind that teachers do not have that kind of organic unity and coherence, like other, more hierarchically structured organizations and professional associations, have. Perhaps the reason for the lack of strong organic unity is the fact that the number of teachers, in the broadest sense, is very large; they are divided by levels of schooling. The lack of firm hierarchy of teachers can be an advantage, for their freedom of speech, action and expression, but also a weakness, in the sense of unity.



## Teachers of today – perspectives and is there hope?

*“Ability is the possession of a faculty which is capable of being adapted to various ends ...and that moral culture demands a great deal of insight on the part of parents and teachers.”*

(Immanuel Kant)

*“For a flock, surely, it is not good if its shepherd is a sheep”* (Goethe)

*“Righteous man is the least susceptible to spiritual unrest, and the unrighteous one is filled with it to the greatest extent.”* (B. Bošnjak)

*“Remarkable and noble men quickly adopt what destiny educates them, and adapt to it flexibly and gratefully...”* (Schopenhauer)

A serious question must be asked – what kind of a world do we live in today? Ethical, Christian, world of love and forgiveness. “We already live in a world deprived even of the last bits of memory of genuine Christian values<sup>161</sup> and norms – society which has been transformed into a museum of terror and horror.”<sup>162</sup> Unfortunately, the world is heading towards a time of “black utopias”<sup>163</sup>, “...in which values of truth and justice, freedom and mercy, equality and dignity, which we had fostered since the beginning of time, will mean nothing more than words emptied of value content...”<sup>164</sup> At every turn faith, ethics, philosophy, principles of Christianity are suppressed, and a merciless dominion of bare power is introduced.<sup>165</sup> Man is multiply alienated every step of the way, accumulation of material wealth is becoming the meaning of life, it is only important “to have” not “to be”, to use the words of Erich Fromm. Policy of will for absolute power has become the name for every evil, separation of ethics from politics is tragic and now politics acts as if there are no ethical principles. Power is the word before which the world kneels, and which renders an individual powerless, and politics omnipotent. To politics: “... succumb not only those who wish to create politics and struggle for power, but also those who are mere spectators and stand on the sidelines, those who turn their backs to politics...”<sup>166</sup>, warns Kosik. Where do we stand on education in such a world? World is undergoing constant and rapid changes, because the waves of globalization<sup>167</sup> spread their ideas

<sup>161</sup> “It is terrible to live in a time in which it is impossible to recognize true value, or a path to it. And the validity of a value is a condition of the existence of a community...” and “... Crisis of our time is not an economic nor a political one, it is a spiritual and moral one: links to our spiritual foundations and key values of life are broken!” Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, pages 212. and 243.

<sup>162</sup> Šušnjić, Đuro: *Orvelijana*, Čigoja, Belgrade, 1999, page 6.

<sup>163</sup> We think that the modern Man of technics, accumulation of material, and mostly needless treasure, has lost his eye for what is most important, and hardened his heart for what is most noble, and that those are largely the reasons why world communities have tremendous problems, and why Earth will become a decreasingly nice place for Man's life.

<sup>164</sup> Šušnjić, Đuro: *Orvelijana*, Čigoja, Belgrade, 1999, page 6.

<sup>165</sup> “Our Earth is like a child... without parents... most... want to take advantage of it. Members of the human race, which were entrusted with the task of lovingly running the world, ruthlessly pillage it, disregarding everything but their immediate needs, and not many of them think of their own children...” Young, W.P.: *Kaliba*, Laguna, Belgrade, 2010, page 133.

<sup>166</sup> Kosik, Karl: *Dijalektika krize*, Mladost, Belgrade, 1983, page 10.

<sup>167</sup> “This form of excessive parental and scholastic influence ought to be avoided carefully, since, in a rapidly changing world, it is exceedingly dangerous to retain the opinions of a bygone generation.” Russel, Bertrand: *On Education*, Routledge, London, 2003 page 127.

and values everywhere. Education is affected, perhaps even more than other areas, by globalization processes. However, "Despite the fact that education is viewed from the standpoint of a profession or occupation – that is to say as gaining skills relevant for a specific job – most people agree that the model of lifelong education will be necessary in future... As societies continue to change, the traditional beliefs and institutions that underpin it are also undergoing transformation. The idea of schooling, as a structured transmission of knowledge within formal institutions for a limited period. IS giving way to a broader notion of learning that takes place... The shift in emphasis towards lifelong learning can already be seen within schools themselves, where there is a growing number of opportunities for pupils to learn outside the confines of the classroom... Not only is it essential to a well-trained, motivated workforce, but learning should also be seen in relation to wider human values, Learning is both a means and an end to the development of a rounded and autonomous self-education in the service of self-development and self-understanding. There is nothing utopian in this idea; indeed, it reflects the humanistic ideals of education developed by educational philosophers."<sup>168</sup> In spite of all the changes area of education, the role of a teacher and an educator remains pivotal and irreplaceable. Russel claims, and rightly so, that there will be a great: "...need of knowledge and thinking when mastering a complex modern world..." and that "advancement of an individual and of a community must go hand in hand..." Once community demanded knowledge to be given without monetary compensation.<sup>169</sup> It is simply impossible today, but we must not go to the other extreme, for all gifts of education cannot be reduced to material, monetary terms. Man hasn't changed radically throughout history. "Epicurus was said... that he used also to keep a school with his father at very low terms."<sup>170</sup> Epicurus was poor. Teacher's calling, both in ancient times and today, is constant giving of self<sup>171</sup> to others and sharing your finest gifts, but it ought to be known that only a man who possesses good can give good.<sup>172</sup> A teacher, like any other man developing and facing serious life challenges, must creatively change.<sup>173</sup> Teachers of the world must ask themselves whether a young being, entrusted to them for education, can completely, unlimitedly and fearlessly<sup>174</sup> see a firm support in its

<sup>168</sup> Giddens, Anthony: *Sociology*, 6<sup>th</sup> edition, Polity Press, Cambridge, 2009, pages 878-879.

<sup>169</sup> "Hellenes... considered earning a disgrace, because it was the task of slaves... Only the work of doctors was respected. *It is particularly disgraceful to sell intellectual work...* Socrates called those who taught others for money sellers of their freedom." Đurić, Miloš: *Istorija helenske etike*, BIGZ, Belgrade, 1976, page 178.

<sup>170</sup> Laertius, Diogenes: *The Lives and Opinions of Eminent Philosophers*, Henry G. Bohn, London, 1853, page 425.

<sup>171</sup> "There are callings so great that they cannot be undertaken for money without showing our unfitness for them; such callings are those of the soldier and the teacher... A tutor! What a noble soul! Indeed for the training of a man one must either be a father or more than man... The tutor must have been trained for his pupil... How can a child be well educated by one who has not been well educated himself!" Rousseau, Jean-Jacques: *Emile or on Education*, Basic Books, New York, 1979, pages 16-17.

<sup>172</sup> "Is there single word which can govern behavior throughout life? ... Kindness... One should not treat others in ways that one would not like to be treated." (Confucius) and "The cheerful heart alone is capable of rejoicing in the good." (Kant)

<sup>173</sup> "Obstructions are never wanting: the very things that were once indispensable furtherances become obstructions; and need to be shaken-off, and left behind us, - a business often of enormous difficulty." Carlyle, Thomas, *Heroes and Hero Worship*, Henry Altemus, Philadelphia, 1899, page 158.

<sup>174</sup> "...the instruction must not be given the aspect of a compulsion to learn... Because...the free man ought not to learn any study slavishly... Therefore... don't use force in training the children in the studies, but rather

teacher.<sup>175</sup> Plato, as a supremely gifted educator, teacher and instructor, is also aware of the difficulties and obstacles that stand in the path to cognition: “In order to achieve true knowledge and learning... a great deal of work and effort is necessary, and student is in need of help, which can only be provided by those who themselves managed to force their way or elevate to knowledge. Such a help was provided by Socrates his entire life, to his followers and students... and Plato follows in his teacher’s footsteps, attempting, from the Academy to Sicily and back, to nurture and educate a breed of new thinkers and statesmen...”<sup>176</sup> Aristotle comes to learn from the glorious Plato.<sup>177</sup> Aristotle soon proved himself to be a remarkably capable student, and then a teacher of the Academy, where he will spend twenty fruitful years, until Plato’s death. However, it ought to be known that the process of education is a two-way process or social relationship, and that there is a relation of a teacher to his student, but also the other way around,<sup>178</sup> especially if the student is a future ruler, which was more often the case in the past than it is today.<sup>179</sup> The encounter of Aristotle and Alexander is legendary: “In many respects... *Aristotle’s encounter with the young Macedon prince was one of the biggest moments in human history.*”<sup>180</sup> A better teacher than Aristotle couldn’t be found in the entire Greek world of the time.<sup>181</sup> Alexander respected Aristotle and saw him as a second father. Philip gave him a body, but his teacher gave him something more valuable and important – a soul.<sup>182</sup> Parent<sup>183</sup> and teacher can never blame a child for failing in school, for who is a parent and a teacher, who ought to lead whom,<sup>184</sup> who is the caretaker of whom,<sup>185</sup> a spiritual

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play. In that way you can also better discern what each is naturally directed toward.” Plato, *The Republic*, second edition, Basic Books, New York City, 1991, pages 215-216.

<sup>175</sup> “A noble man aids in fulfilling what is good in others, not bad.” (Confucius)

<sup>176</sup> Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 243.

<sup>177</sup> “... His personal relation with his teacher was completely filled with respect and intimate friendly love, and when he speaks (writes) of a man, *whom bad men have not even the right to praise...* than he obviously refers to Plato.” Copleston, Frederick: *Istorija filozofije, Tom I, Grčka i Rim*, BIGZ, Belgrade, 1988, page 305.

<sup>178</sup> Plato says that insatiability in freedom tears down a democratic state, in the name of freedom sons are not afraid of their fathers, and they do not respect them, in such a state teacher fears his students and flatters them, and the students do not respect the teacher that much.

<sup>179</sup> “I suggest, that just as great princes look suspiciously on men who are too clever, and hate them-as Julius Caesar suspected and hated Brutus and Cassius ...Nero was suspicious of Seneca, Dionysius of Plato-while on the other hand they take delight in duller and simpler souls” Erasmus Desiderius, *The Praise of Folly*, page 115, or “We must admit that Aristotle also had a different, more worthy student in Alexander, than Plato found in Dionysius.” Hegel, G.F.: *Istorija filozofije, I-III*, BIGZ, Belgrade, 1975, book II, page 246.

<sup>180</sup> Đurić, Miloš: *Istorija helenske etike*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1987, page 373.

<sup>181</sup> “...as the educator of the young Alexander of Macedon, the great philosopher left even the deepest and most lasting mark, on the level of civilization.” Bralić, Željko: *Antička kao društvo učenja*, Faculty of Security Studies, Belgrade, 2006, page 303.

<sup>182</sup> Petronijević, Branislav: *Od Zenona do Bergsona*, Zavod za udžbenike i nastavna sredstva, Belgrade, 1998, page 80.

<sup>183</sup> “Let us suppose the first parents to have been fully developed, and see how they educate their children. These first parents set their children an example, which the children imitate and in this way develop some of their own natural gifts.” Kant, Immanuel: *On Education*, D.C. Heath and Co., Boston, 1900, page 14.

<sup>184</sup> “You don’t play with a child... to prove your superiority... It’s not about winning or losing. It’s about love and respect... to avoid will to power is to limit yourself – to serve.” Young, W. P.: *Koliba*, Laguna, Belgrade, 2010, page 99.

<sup>185</sup> “Psychologically, parents should be a background... Their pleasure should consist in his growth and progress... The parent must act with reference to the child, but the child must act with reference to himself and

leader and life role model? A child is the last to be on the side of misfortunes, crimes and evils of the world.<sup>186</sup> Modern people have become self-sufficient, and some teachers shift life, educational and social concerns to children. Do not leave your mission, to be a good and useful man in a community, to anyone behind you. Teacher's calling genuinely means and always implies that when all falter, for reasons known only to them: parents, society, state's institutions, child's environment and the entire world, teacher must remain the light of love.<sup>187</sup> Teacher's calling can save our planet.

People rightfully ask – why are values of a teacher not respected today? Because our time doesn't respect just about no one's values<sup>188</sup> and because it attempts to substitute real life with the illusion of life, knowledge with a copy of knowledge, fundamental work<sup>189</sup> with false success. Bad, careless and incompetent work of teachers<sup>190</sup> unmistakably leads the community to its downfall, social regression and harsh conflicts. If someone aims to inflict the most permanent evil to a community, nation and state, he just needs to supply them with bad, lazy and incompetent teachers. Children will be in the state of unfreedom and war against the world.

When there is no real teacher, schools are worthless, because there is no excellent educator to convey messages of life, precious spiritual and cultural gifts. If a teacher is a merchant of children souls,<sup>191</sup> grades and a destructor of knowledge who never keeps his word,<sup>192</sup> he cannot expect respect, attention and love from his students.<sup>193</sup> If teachers of today would just find the strength, they could make the world a better place.

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the outer world. That is the essential difference." Russel, Bertrand: *On Education*, Routledge, London, 2003 pages 123-124.

<sup>186</sup> "If, from an early age, they had been led to feel the value of life by watching its development with affectionate proprietorship...they would not be so ready to destroy what others have similarly created or tended." Russel, Bertrand: *On Education*, Routledge, London, 2003, page 93.

<sup>187</sup> Mother Teresa lived a Christ-like Love, and warned about the main causes of modern world problems: "Love begins in our homes; love lives in homes... It seems as everyone is in such a terrible rush nowadays, anxious to achieve greater success, development, wealth... and children have so little of their parents' time. Parents don't have time for each other, and thus the violation of world peace begins in families."

<sup>188</sup> "Sickness of our time: process of disintegration of mutual meanings and the rejection of absolute values! When... universal meanings are rejected, and an absolute table of values is destroyed, then everyone turns to himself: thus the supremacy of group and personal over general and universal, different over identical, private over public – all characteristics of relativism and individualism of the postmodern era." Šušnjić, Đuro: *Drama razumevanja*, Čigoja štampa, Belgrade, 2004, page 234.

<sup>189</sup> "It is clear that the young should not be educated for the sake of amusement. For while they are learning they are not amusing themselves, since learning is a painful process." Aristotle, *Politics*, Hackett Publishing Company, Indianapolis/Cambridge, 1998, page 233.

<sup>190</sup> We know that not all things are in the hands of teachers and educators, but we claim that the key levers are: "What are the reasons for "bad schools" situated in poor areas? Students' personal and family troubles are discussed in class... Violent behavior is nothing unusual... that the real reform of education must be related to decreasing poverty... improving school facilities..." Giddens, Anthony: *Sociologija*, Ekonomski Faculty of Economy, Belgrade, 2006, page 517.

<sup>191</sup> "...as every carrier wishes to have his admirer, so does the proudest of men, a philosopher, thinks that his actions and thinking are scrutinized by the eyes of the Universe, from all sides, through the spyglass." Nietzsche, Friedrich: *Knjiga o filozofu*, Grafos, Belgrade, 1984, page 74.

<sup>192</sup> "First of all, be loyal and faithful to your word... One who does not know the value of words will never be able to know people." (Confucius) or "Is there anything as real as words are?" Wilde, Oscar: *Slika Dorijana Greja*, NID Company, "Novosti", a.d. Belgrade, 2011, page 25.

Teacher must never accept defeat. A true teacher is the one who never accepts the existing, and always fights to better each and every student, aiding him in realizing his hidden powers. If a school, family, village, city and state fail to do enough for the good of students and their education, how are we to expect the children to find their own way? Even this is sometimes possible, but the road is long and the journey is very uncertain. It is never easy for children<sup>194</sup> to be good, compassionate and diligent on their own, in a world which is increasingly harsher, closed and entangled in a knot of evil, in its false and sick glow, where many men, even nations, worship false Gods and fallen stars.<sup>195</sup> It is difficult for a child to be wiser than its parents and teachers.

What do children seek in a teacher? Only the things all men lack: love, knowledge, respect, appreciation, attention and hope. Sometimes it is necessary to reprimand a child,<sup>196</sup> but not even in such situations does a teacher use rough words, because they poison the heart and a child's soul, and are remembered for life. Teacher gets the children used to nice, noble and dignified words.

We must confess that some teachers demand even those virtues which they themselves lack, demand attention from the young which they themselves do not pay, and we know that the ones leading men must lead them in all that is most important for humankind.<sup>197</sup> There are teachers who demand those knowledges and skills, from their students,<sup>198</sup> with which they themselves are not familiar enough. Individual human imperfection is at play here. It is necessary for beauty to dwell in classrooms, regardless of how much reality of life lacks it, because art is the desired world condition, which is more than just a plain notion of the real world. Teachers of the world must never cede in what is crucial for the calling of a teacher, spreading the light of knowledge, love and respect, human optimism and firm hope.

Teacher's calling is the foundation of all social callings, because the teachers of the world are the first to educate<sup>199</sup> all men which will perform some of the most significant tasks in society. One who is first is crucially important in all aspects, and leaves the deepest and most fruitful mark, but on the other hand, his oversights and weaknesses are hardly compensated, and thus a community and responsible state's leadership must take care of the teacher's calling the most. Indeed, there is nothing more valuable,

<sup>193</sup> "There is no possible method of compelling a child to feel sympathy or affection; the only possible method is to observe the conditions under which these feelings arise spontaneously, and then endeavour to produce the conditions" Russel, Bertrand: *On Education*, Routledge, London, 2003 page 132.

<sup>194</sup> "It contained all honesty of youth, along with the passionate innocence of it. It can be felt that the world hasn't soiled it." Wilde, Oscar: *Slika Dorijana Greja*, NID Company, "Novosti", a.d. Belgrade, 2011, page 22.

<sup>195</sup> "The greatest loss that can befall humanity is the failure of the highest types of life..." (Nietzsche)

<sup>196</sup> "...punishment must be inflicted on children...that they may understand that its one aim is their improvement." (Kant)

<sup>197</sup> "To influence someone is to surrender your soul to him... The goal of life is self-development. To perfectly fulfill one's nature – that is the reason of our existence..." Wilde, Oscar: *Slika Dorijana Greja*, NID Company, "Novosti", a.d. Belgrade, 2011, page 23.

<sup>198</sup> Socrates always starts from himself, when it comes to education: "For what I say to you, about the necessity of education, concerns me as much as you," says Plato in *Alcibiades*.

<sup>199</sup> In Athens, a pedagogue was an example of proper behavior, it is important for moral nurture and life maturing.

honorable and sublime under the Sun than the teacher's calling, which is the highest calling and calling of all callings. Unfortunately, today's age is not prone to people who completely give themselves to their life's calling. Teacher unmistakably delivers his community's balance sheet through actions of his students. Therefore, it is community's primary task to find the best and most excellent people in it, who will be teachers, who will not ask too much and only for themselves, but unselfishly give, not take but gift.<sup>200</sup>

Blighters who think that only money is needed for school, along with skills of deceits, lies,<sup>201</sup> deceptions and half-truths, and all kinds of financial malversation, selling falsified diplomas, are perhaps unaware of the magnitude of the crime they are committing, and the inestimable damage they are inflicting to the community and their children. People who allow for the schools to be graduated without knowledge,<sup>202</sup> work, integrity and skills, just because someone paid for the diploma,<sup>203</sup> are committing a crime, if we are to call that act by its true name, as glorious Confucius<sup>204</sup> demanded. When school is not the name of knowledge, capability, loyalty,<sup>205</sup> integrity and respect of social order, that it is a certain road to overall decadence. All the things an educator failed to do, as an important being of a community, will remain written.

Teachers must be a torch of light in the darkness of a century, they must devotedly perform all those tasks and missions which other people, superficial and hungry for glory, fail to perform. The calling of an educator, insufficiently respected and socially supported, represents a granite pillar of every organized state. Educators prepare the new time, relying on the values of the past. School must always nurture diligent, capable and honorable men. World rests on the backs of invisible righteous men, who unselfishly stand strong, firm and devoted to human calling. Teacher must change in order to constantly exist in the best and most noble way. "No one sews a patch of unshrunk cloth on an old garment, for the patch will pull away from the garment, making the tear worse. Neither do people pour new wine into old wineskins... they pour new wine into new wineskins, and both are preserved." (Matthew 9, 16-17). Modern time shows many signs of being a soulless time of race, strife, competition and fundamental changes, which impose such demands and tight, narrow limits to individuals, that many people are incapable of enduring and withstanding such a burden. New demands of globalization

<sup>200</sup> What Russel wrote, of the happiness of scientists, in his book *The Conquest of Happiness*, we would say of a teacher's happiness: "All the conditions of happiness are realised in the life of the man of science. He has an activity which utilises his abilities to the full, and he achieves results which appear important not only to himself but to the general public."

<sup>201</sup> "Falsehood has an infinity of combinations, but truth has only one mode of being." (Jean-Jacques Rousseau)

<sup>202</sup> Great knowledge is not neither inherently good nor evil, in the hands of an evil man, knowledge becomes poison, and in the head of a good man, knowledge becomes medicine. Excellent among us must be noble men.

<sup>203</sup> "There aren't two things in the world which are less compatible than knowledge and profit, science and money. If money is needed for one to become more educated, if education is bought and sold for money, they both the one buying and the one selling are cheating. Christ expelled the traders from the temple. Likewise, traders ought to be expelled from the temple of science." Tolstoy, *Put u život*, II, Zlatna knjiga, Leskovac, 2009, page 41

<sup>204</sup> "Let the ruler be the ruler, minister the minister, father the father, and son the son... In a country in which ruler is not the ruler... father is not he father... it ought not to be joyful, even if the barns are full." (Confucius)

<sup>205</sup> "To strengthen your virtue means keeping your word, and be loyal, and stand by Justice as the end mean of your behavior." (Confucius)

are becoming too heavy of a burden for a man, stretched between increasing work demands, insane pace and ruthless game of life. No one has it easy today, and our rough world demands men who are spiritually firm, morally upright and persistent as granite. Such men must be teachers. Philosophers are the best example of teachers of the world.

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# MORAL EQUALITY OF SOLDIERS IN WAR: NECESSITY OF SEPARATING JUS AD BELLUM FROM JUS IN BELLO

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In a world and age in which wars are a daily phenomenon, soldiers and combatants are often times judged as moral or immoral based on the morality of the war they are fighting. This is not the right path to take, as soldiers are to be judged solely for the way they are fighting in a war, not based on the justification of the war itself. Soldiers do not start wars, in reality they do not even have the freedom of choice whether to fight in them or not, nor can they stop wars on their own. They are trapped in a situation they did not cause, and have no power to exit it. Their enemies are not criminals, they are also men in uniforms, following orders from their superiors. This does not mean that soldiers have no moral responsibility whatsoever, on the contrary, they are fully responsible for the way they fight, how they apply violence and how they conduct warfare, and they are to be judged for their actions in combat, and in war in general. Thus it is possible for a soldier to fight justly, even if he fights for the unjust side. Similarly, it is also possible for a soldier to be unjust, even if he is on the just side of the conflict. These two elements must be separated, and judged independently.

*Key words: Moral equality, jus ad bellum, jus in bello, soldiers, duty, criminalization of war*

## Introduction

The place and time of birth, which will largely determine the course of life, cultural matrix, language, way of thinking and certain ethical patterns, surely are not things which a man can control, nor can he be held responsible for being born in a certain time, and in a certain community. However, we can hardly claim that a man is completely determined, or better yet, that his entire future is utterly determined by the place and time of his birth, but there is no doubt that every man who ever existed was, and is, a slave to his time, and is, to a certain point, shaped and modeled by the culture he was born into and in which he formed as an individual. There are cases of men being born in the lowest castes of Indian society, in the time when the country (India) was at a substantially lower technical and technological level, compared to the Western world, who then went on to become important innovators, engineers, and pacesetters of the developed Western technological

society. Likewise, there are plenty of examples of people who gained all possible predispositions for a snug and careless life, with opened educational and professional opportunities in their youth, and still managed to end up on margins of the society, contemptible and rejected by the same society which was their playground. These, and similar cases are, however, seldom, for the history teaches us that the odds for overcoming the given starting conditions of life are possible, yet extremely rare. It is known that the majority of Greek and Roman philosophers came from the higher classes, the same way as the medieval sages and conquerors were predominantly born in families of sages and conquerors. Today, the situation hasn't changed at all, as the majority of men controlling global capital descend from families which have been doing it for decades, if not centuries. On the other side of the specter, most men who were born in slavery died as slaves, the same way as the medieval serfs were born as such, lived as such, and died as such. Again, the situation is pretty much the same today, with the enormous majority of those born in the so-called "third world" dying in the same place, often times suffering horrendous life conditions. Social changes truly are barely achievable, particularly when we have the improvement of the position of the poor and underprivileged parts of society in mind, in any part of the world. A society reproduces the ideology of the privileged, powerful decision makers using education<sup>1</sup>, and the process (of social relations reproduction) is present in virtually all segments of any society. Certain parts of the planet, certain areas, regions and countries represent places in which men are born, for centuries and centuries, whose place of birth certainly dictates at least one war conflict in their lifetime. Even though war is a universal phenomenon, which spares no corner of planet Earth<sup>2</sup>, there are particular focal points, in all periods of human civilization, for which "war is especially interested in." As an example, the Balkans is a region which can be characterized as one of the focal points of war, for a long period of time now, as it lies on the Huntington's border line between different civilizations, and it never seems to avoid global conflicts, and thus can be viewed as a litmus test of the state of relations between great powers of the world. Men born into such circumstances unfortunately have large odds to find themselves in the middle of a war conflict, in some point in their lifetime, wearing the uniform of the country they were born in.

## Who starts, and who fights wars?

It seems naïve, especially in the modern age of developed critical thought, to presume that war is merely a matter of choice of each and every individual man who takes part in it. The idea of just war is an idea which "lives" for centuries, occupies great minds and produces brilliant solutions, but still, it relates to a very small number of people, in the sense that a negligible percentage of humanity is involved in making the decision whether to start a war or not, i.e. whether the war which is being started is just or unjust. On the other hand, an enormous percentage of men fights the same wars started by the negligible

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<sup>1</sup> "Education reproduces inequality, justifying privileges." Mike Haralambos, and R.M Heald, *Uvod u sociologiju*, (Zagreb: Globus, 1989), page 183.

<sup>2</sup> Besides physical nature, modern war can be fought in the virtual world, and the so-called *cyber-warfare* has become an indispensable segment of military strategies of all modern countries. Perhaps the expansion of the battle field to the orbit, other planets or the entire universe awaits the humankind in the distant, or not so distant future.

percentage of men. An issue arises – what decision is harder to make, from a human and moral standpoint, whether to start a war which will be fought by others, or to take a life of another in a war which someone else started?<sup>3</sup> We must stop here, to stress that we only speak of modern war conflicts, because there were cases in history of glorious rulers losing their lives in wars they themselves started.<sup>4</sup> Unlike the ancient times, in which the king, or the ruler, would personally lead his army to battle, sometimes charging in the first line<sup>5</sup>, it is unthinkable to see the prime minister, president, chancellor, or anyone who had any part in making the direct decision to start the war, on the battlefield in today's wars. A soldier, usually a young man, simply finds himself in a situation on the battlefield, a situation referred to as "him or me" situation, and at this moment, it is pointless for him to contemplate who and why started the war. Not only is it useless to wonder why the war started at this point, but it is also impossible for a soldier to exit the current situation, i.e. "inability to stop the war renders the participants, in a sense, captives of this reality."<sup>6</sup> "Captured" in a war in the way described, the only thing a soldier can do, and be held responsible for it, is to lead the war justly, respecting the rules of conducting warfare, i.e. respecting *jus in bello*. The soldier himself, naturally, obeys the orders, which can often clearly break the rules of *jus in bello*, and here we have a point in which a soldier can, and must, choose the morally correct action, to refuse to perform brutalities. Tolstoy writes that "a soldier directly kills, cuts, burns, robs, and these actions are always ordered by those who are above him."<sup>7</sup> It clearly follows that the ethical education of officers is of outmost importance for the conduct of the army in war, i.e. respecting the rules of conducting just warfare, especially because "the enlisted personnel have neither the intellectual skills nor the professional responsibility of the officer. They are specialist in the application of violence not the management of violence."<sup>8</sup> Precisely for this reason a soldier must remain morally equal to the soldier against whom he is fighting, or applies violence, for in the case he is prescribed with the moral superiority, based on the fact that his side is waging a just war, he would be prone, or at least more prone, to obey the mentioned orders which

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<sup>3</sup> Truly, those who formally declare and start wars almost never personally fight in them, and it is hard to imagine that those men who are forced to directly kill in war are the same men who started it in the first place. There is also an obvious generational gap between those men who start, and those men who fight wars, or as the 30<sup>th</sup> President of The United States of America, Herbert Hoover put it – "*Older men declare war. But it is the youth that must fight and die.*"

<sup>4</sup> Serbian history remembers prince Lazar Hrebeljanović, or Emperor Lazar, as a ruler who personally led the Serbian army, and lost his life, in the Battle of Kosovo (1389). His death significantly influenced the creation of the Battle of Kosovo cult in Serbian nation. Turkish sultan Murad was also killed in the said battle. No less than nine Roman emperors died in battles, as well as some of the most famous rulers in the history of mankind – Cyrus the Great, Leonidas, Richard I (Richard the Lionheart) and many others.

<sup>5</sup> Alexander the Great (Alexander of Macedon) unquestionably is one of the greatest generals the world has ever seen. It is a known fact that Alexander personally fought in virtually all battles led by his army, and often time, in the first cavalry lines, he spearheaded the attacks and exposed himself to mortal danger. In the Battle of the Granicus, he avoided death only thanks to his friend Cleitus. "King's "Companions", the Hetairoi, were the most lethal cavalry... nominal commander was Parmenion's son Philotas, but Alexander himself led the charge." *Stari svet, Ilustrovana istorija sveta, I* (Beograd: Narodna knjiga, 1983), pages 167-8.

<sup>6</sup> Jovan Babić, *Etika rata i „teorija pravednog rata“*, Projekat Rastko, <http://www.rastko.rs/cms/files/books/5651a09f8bdef>, (downloaded 6/20/2016), page 52.

<sup>7</sup> Lav Tolstoj, *Rat i mir*, IV (Beograd: Prosveta, 1974), page 329.

<sup>8</sup> Samuel P. Huntington, *The Soldier and The State* (Cambridge/London: Harvard University Press, 2000), pages 17-18.

obscenely neglect just warfare. However, we will have to leave the discussion regarding giving and obeying orders which disregard the *jus in bello* principle for some other time, simply because it is so utterly complex, that it deserves its own extensive research and paper. Perhaps the first thing we ought to do, is to explore and determine how exactly did the soldier find himself in the battle field, wearing a military uniform, fighting a war he didn't start and killing men he does not know, so that we could establish his moral responsibility in the given situation more reliably.

## Soldier's Duty to Fight

Living in an organized state, which has its laws, and which enforces them across its territory, besides enjoying the security guaranteed by the state, which enables him to plan the future, a citizen also has certain responsibilities to his state. Like Hobbes says, by transferring from a natural state into the social state, every individual renounces some part of his natural rights, and transfers them onto the sovereign, so that he could enjoy "continual success."<sup>9</sup> Declaration of war is one of the prerogatives of the sovereign, and this fact represents one of the corner stones and pivotal principles of the just war theory, i.e. that war can only be declared by a "competent authority", which is emphasized by virtually all philosophers in the tradition of deliberating just war – Thomas Aquinas<sup>10 11</sup>, Hugo Grotius<sup>12</sup>, Samuel Pufendorf<sup>13</sup>, Locke, Kant, etc. This means that the citizen transferred the right to declare war to his government, amongst other rights he transferred to the government, and in return, he received an opportunity for a relatively peaceful and predictable life, in a society governed by laws. This did not occur, meaning the transfer of rights to declare war to the state, solely so that the citizen would gain the mentioned peaceful life, but also because of what Jeff McMahan calls "the duty to defer to the epistemic authority of the government."<sup>14</sup> A soldier, that is to say a citizen in peace time, accepts the fact that he simply isn't in the position to possess all relevant information, which would allow him to make the right decision about whether to take part in war or not. It seems clear that it is practically impossible, naïve and foolish to expect that every citizen should be familiarized with every single detail of high politics and the defense system, which has influence on making decisions of political and military establishment, especially in the modern states with the population of multiple million citizens. Even if the government attempted to explain the pros and cons of war to its citizens, it would render the decision impossible to make, and Victoria adds that "if the subject cannot serve in war except they are first satisfied of its justice, the state would fall into grave peril..."<sup>15</sup> The danger is amplified, in the modern age of global technologies, by the fact that the population of a county preparing for war, or better to say for which war is prepared, can constantly be fed wrong, false and

<sup>9</sup> Thomas Hobbes, *Leviathan* (Oxford: Oxford University Press, 1998) page 41.

<sup>10</sup> St. Thomas Aquinas, *Summa Theologica*, <http://www.ccel.org/ccel/aquinas/summa.html>, pages 1813-1814.

<sup>11</sup> Thomas Aquinas largely continues the thoughts of Aurelius Augustus

<sup>12</sup> Hugo Grotius, *The Rights of War and Peace* (Indiana: Liberty Fund, 2005) page 397.

<sup>13</sup> Samuel Pufendorf, *The Whole Duty Of Man According to the Law of Nature* (Indiana: Liberty Fund, 2003) page 238.

<sup>14</sup> Jeff McMahan, *Killing in War* (Oxford: Clarendon Press, 2009) page 66.

<sup>15</sup> Francisco de Vitoria, *De Indis et de Jure Belli Relationes* ed. Ernest Nys, Washington D.C. 1917: On the Law of War, trans. John Pawley Bate, page 176, taken from Michael Walzer, *Just and Unjust Wars* (New York: Basic Books, 1977), page 39.

malicious information, which encourage the alleged “pacifism”, but in reality are merely a segment of the special war, which represents a very cost effective style of warfare in modern age. In certain phases of special war, states and international institutions pressure a community, with the goal of “waiving aggressive intentions... by encouraging disobedience... compromising the military and defense system; discrediting the government, etc.”<sup>16</sup> Accepting the decision of entering war, made by a “competent authority” is the duty of every citizen, and the only thing that makes accepting this decision any different from accepting any other government decision, is the complexity and moral specificity of war, as a state which suspends “normal life”, or to say, the laws which make life safe and predictable. As Walzer states, this discipline is not simply imposed, “it is also a discipline they accept, thinking that they have to for the sake of their families and their country.”<sup>17</sup> The demand to risk one’s life is a legitimate demand of the state, and Walzer adds that “surely there has never been a more successful claimant of human life than the state.”<sup>18</sup> Even if the citizen, in the state of war soldier, has doubts about justness of war, he must accept his epistemological limitations, and accept the possibility that “he merely *thinks* the war is unjust, but he *knows* he could be mistaken.”<sup>19</sup> Besides the fact that an individual has a duty to his state to fight in the war it declares, state’s mechanisms, especially in war times, literally force citizens to answer the call to arms. Not only is the moral condemnation of the community present, for all those who avoid, or try to avoid their duty to fight, but there are also various legal measures which are used against the mentioned citizens, which vary from state to state. Even though they differ, they all have one thing in common, they are always drastic, and summarily executed, i.e. in court martial. The fact that a citizen may not agree with the decision his government made, does not grant him the permission to simply refuse to obey it, much like he is not allowed to simply chose not to obey other government decisions, like paying taxes, or respecting traffic rules. Some authors go to the extreme of proposing the introduction of death penalty<sup>20</sup> for anyone who chooses to refuse military service, or even suggesting suicide<sup>21</sup> to those who are convinced that they ought not take part in their state’s war conflict.

## Soldiers, not Criminals

Now, when we demonstrated how the soldier wound up on the battle field in the first place, face to face with the soldier on the opposite side, it is redundant to ask if the two of them are morally equal. These soldiers took no part in starting the war, nor have they

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<sup>16</sup> Ljubomir Stajić, *Osnovi bezbednosti* (Beograd: Policijska akademija, 2004) pages 231, 233 and 241.

<sup>17</sup> Walzer, *Just and Unjust Wars*, page 35.

<sup>18</sup> Michael Walzer, *Obligations – Essays on Disobedience, War and Citizenship* (Cambridge: Harvard University Press, 1970) page 77.

<sup>19</sup> Dan Zupsek, “A Presumption of the Moral Equality of Combatants: A Citizen-Soldier’s Perspective” in *Just and Unjust Warriors*, David Rodin and Henry Shue, (Oxford: Oxford University Press, 2008), page 224.

<sup>20</sup> C.D Broad, “Ought we to fight for our country in the next war?” *Hibbert Journal*, 1936, Volume XXXIV, April, reprinted in *Ethics and the History of Philosophy*, 1952. Reprinted in *Broad’s Critical Essays in Moral Philosophy*, ed. David R. Cheney (New York: Humanities Press, 1971), page. 7.

<sup>21</sup> *Ibid.*

considered whether the attack, or defense, of their state meet the *jus ad bellum* conditions, nor are they to be held responsible for eventual unjustness of their side. Moreover, besides not being responsible, at no moment in time were they in a position to know with certainty, that their side's war is just or unjust. Based on the information they possess, they may have, and usually do have, an opinion or an assumption, but the reality of the situation is that, due to the propaganda activity of both sides, limited information, insufficient education and knowledge of the topic, and many other important factors, they simply cannot have a reliable notion whether they are on the just side or not. It is almost certain that a huge majority of soldiers, in all wars which have been waged in human history, thought that they were on the "right" side of the conflict, including soldiers who were on the opposite sides, fighting each other on the battlefield. Hence the only preoccupation of a soldier ought to be to justly wage the war which simply happened to him, which captured him, and which was predestined to him, simply due to the fact that he was born in a particular corner of the planet, at a particular age. The separation of *jus ad bellum* and *jus in bello*, within both the thesis of symmetry and the thesis of independence, derives not only and exclusively from the fact that men who are affected by the second (soldiers) have nothing to do with the first, but also from the implications which their "merging" would create. If we were to tie the behavior of a soldier in war, i.e. justness and righteousness of the manner he fights in war, to the justness of the war itself, on which he did not have any influence whatsoever, we would find ourselves in a situation in which all acts of a soldier fighting for the side which is perceived as unjust, would be unjust. This would lead to an absurd situation, in which a soldier who is forced to fight in a war, has no right to defend his own life, if he is attacked by the soldier on the opposite side of the battlefield, who is fighting on the just side, simply because his self-defense would then be considered unjust violence! This makes David Rodin's view that moral asymmetry of *jus in bello* is only "half true"<sup>22</sup> even more astonishing, as well as Jeff McMahan's claim that Wolzer's theory of independence of *jus ad bellum* and *jus in bello* is false, and that the justness of fighting in a war directly depends on the justness of the war itself.

Let us then imagine a soldier fighting for his state, which is waging an unjust war, who was placed in the described "him or me" situation on the battlefield, thanks to his state's and army's mechanisms of coercion. If we consider his every action to be unjust, simply because his side is unjust,<sup>23</sup> then it follows that he has no right whatsoever neither to open, nor to return fire. There is a famous analogy with the police officer and criminal who has no right to return fire, if the police are firing shots at him. Still, neither one of these imaginary soldiers, who are on opposite sides, is the police, nor is he in a police action against a criminal, but rather in war conflict against a soldier with equal moral and legal rights. Criminalization of one side, which is achieved by joining *jus ad bellum* and *jus in bello*, would produce a situation in which "our enemies are denied the right to defend themselves,

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<sup>22</sup> David Rodin, "The Moral Inequality of Soldiers: Why Jus in Bello Asymmetry is Half Right", in *Just and Unjust Warriors*, David Rodin and Henry Shue, (Oxford: Oxford University Press, 2008) page 68.

<sup>23</sup> This raises a serious issue, would this imply the establishment of some kind of a global, universal moral, which would determine who is just and who is unjust, at the very beginning of the war? This moral would negate different moral systems, because what one society considers moral, may be considered immoral by another society. Moreover, often times belligerents in a conflict have completely different ethical standpoints of certain pivotal sticking points.

and war is equated with police action against something wrong, illegal and evil.<sup>24</sup> There is a lot of symbolism in how official Croatia refers to the operations “Oluja” (Storm) and “Bljesak” (Flash) – military-police actions. However, when it comes to civil wars, or perhaps better to say internal conflicts,<sup>25</sup> it is an extremely difficult and thankless task to provide any final conclusions regarding *jus ad bellum* and *jus in bello*.

Can it even be possible for a state to accuse another state of illegal actions, when there is no applicable law, no common authority, no sovereign recognized by both states, in the sense of global government, which would be capable of punishing a state, or authorizing another to conduct a punitive war? After finishing this “war”, and the question stands whether to call this police-action-like conflict a war, all the soldiers who fought for their country, the state which would be dubbed unjust by the global authority, would have to be treated as common criminals, and accordingly convicted of their crimes. This would practically mean indicting all the soldiers on the defeated side for the acts of murder, attempted murder, kidnaping and various other crimes. A permanent and sustainable peace is unthinkable in this scenario, where one side of the conflict would be criminalized to such extent that all the “criminals”, or soldiers of the defeated side, would be imprisoned in jails. From this follows that the war would be impossible to end in any other way than with the triumph of the just side over the criminals, as it seems unimaginable that criminals could secure a permanent victory over the police! Even the formulation “police victory” seems a bit clumsy and misfortunate, because the task of the police is to enable the criminals to be punished, not to triumph, and an even more misfortunate formulation would then be derived from the notion of a war against criminals – “punitive war.”<sup>26</sup> Hence the necessity of separating *jus ad bellum* and *jus in bello* lies not only in enabling the fair treatment of all soldiers in a conflict, it also represents a *condicio sine qua non* of a permanent, sustainable peace, simply because a peace can be achieved with quondam war enemies, but never with a state of criminals.

## Conclusion

The existence of moral symmetry of soldiers in a war conflict is absolutely necessary, i.e. the separation of *jus ad bellum* and *jus in bello*, which is also supported by the classical law of war, for it “postulates equality of the belligerents and hence bilateral, non-

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<sup>24</sup> Jovan Babić, *Teorija pravednog rata i moralni status neizvesnosti njegovog ishoda*, Projekat Rastko, <http://www.rastko.rs/filosofija/rat-i-mir/delo/14130> (downloaded on 5/11/2016)

<sup>25</sup> Due to the complexity and layered character of civil wars and conflicts within a state, it is difficult to pinpoint and determine the exact form, or type of political violence in play. Whether something is a rebellion, unrest, war, terrorism, guerrilla, subversion, repression, retaliation or some other form of political science, recognized by political science, can be very hard to define, especially because these forms of political violence tend to mix, transform from one to another, etc. This naturally has tremendous implications on how the violence is dealt with, particularly so in the sense of acceptable moral actions and measures, because there is significant difference in the treatment of enemy soldier, terrorist, rebel or murderer. The doctrine of causing low intensity conflicts, which is heavily in use by today’s superpowers, as well as asymmetric conflicts, further deepen the problem, and dim the already vague lines of differentiation between various forms of political violence even more.

<sup>26</sup> Sharon Anderson-Gold, “Kant and the unjust enemy: Lessons for our war on terrorism”, *Filozofski godišnjak*, 2010, 23: page 254.

discriminatory application of the *jus in bello*, without any reference to the merits of the conflict.”<sup>27</sup> The stated arguments for moral equality of soldiers would allow for an unimpeded judging of just warfare, i.e. respecting of *jus in bello* by both belligerents. For it is certain that the abolition of moral right of the opposing side, regardless of its name, in the war between two sovereign states,<sup>28</sup> could potentially lead to the encouragement of soldiers on the “just side” to cross the limits of just warfare, or to enjoy “*in bello* privileges”<sup>29</sup>, for they are now not fighting against enemy soldiers, but against an army of criminals. Even Waltzer’s<sup>30</sup> “back-to-the-wall”<sup>31</sup> argument, or “supreme emergency” in situations in which the entire civilization is in danger, suspends *jus in bello*, so it seems problematic to answer whether only the just side can invoke the argument of supreme emergency,<sup>32</sup> because it is difficult to imagine that the unjust side has to react in such a way to protect the civilization. Statman’s *Continuum thesis* “undermines the Separation Thesis, according to which *jus in bello* is separate from *jus ad bellum*.”<sup>33</sup> It is also interesting to wonder, how would a soldier react if he knew that he was perceived as unjust, almost as a criminal, and whether this would lead to him granting himself the mentioned *in bello* privileges, because if he is a criminal, if he will be judged as one, why not use criminal methods? War is a hell in which men express all the best and worst characteristics, and “the most sublime place to express all the value of ethics of life and the most dangerous place where the life of ethics can forever perish.”<sup>34</sup> Not only would merging or joining *jus ad bellum* and *jus in bello* cause such consequences, but it would also significantly hinder the prospect of achieving a just peace, and “an unjust peace will always produce new causes for war.”<sup>35</sup> And in every future war, a soldier will play the pivotal role, regardless of how much we strive to robotize war, and the conflicts will grow increasingly complex to morally judge. “Judging by the experience of the last two decades, the visions of long-range, computerized, high-tech warfare so dear to the military-industrial complex will never come to pass. Armed conflict will be waged by men on earth, not robots in space.”<sup>36</sup> Finally, the mentioned men, tens of millions of them, who were born, for which they have no responsibility, in an “unjust” and “criminal” state, would then be destined to become unjust soldiers, criminals, felons and murderers, simply by being involved in a war of the country of their birth. This is, unfortunately, a cruel reality for many former, present and future soldiers who come from the countries in “modern war hotspots.”

<sup>27</sup> Peter Haggemacher, “Just War and Regular War in Sixteenth Century Spanish Doctrine”, *International Review of the Red Cross*, 1992,32, Special Issue 290: pages 441-442.

<sup>28</sup> In this paper we have limited ourselves to scrutinizing the concept of war as the conflict of two sovereign states, while other forms of conflict deserve somewhat different view and interpretation of the equality of participants in them.

<sup>29</sup> David Rodin, “The Moral Inequality of Soldiers: Why Jus in Bello Asymmetry is Half Right”, in *Just and Unjust Warriors*, David Rodin and Henry Shue, (Oxford: Oxford University Press, 2008), page 54.

<sup>30</sup> Walzer is one of the most prominent advocates of separation of *jus ad bellum* and *jus in bello*

<sup>31</sup> Walzer, *Just and Unjust Wars*, page 252.

<sup>32</sup> Walzer devised the term *supreme emergency*

<sup>33</sup> Daniel Statman, “Supreme Emergencies and the continuum problem”, *Filozofski godišnjak*, 2010, 23: page 88.

<sup>34</sup> Ilija Kajtez, *Mudrost i mač*, (Beograd: Medija centar Odbrana, 2012), page 606.

<sup>35</sup> Babić, *Etika rata i „teorija pravednog rata“*, page 35.

<sup>36</sup> Martin Van Creveld, *Transformation of War*, (New York: Free Press, 1991), page 208.



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# GENESIS OF THE ISLAMIC STATE AND ITS REFLECTIONS ON THE SECURITY OF WESTERN BALKAN COUNTRIES\*

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All Western Balkan countries are, more or less, affected by the problem of modern day Islamic extremism and terrorism, which is, directly or indirectly, associated with the activity of the Islamic State in Iraq and Syria. The development of this terrorist organization is characterized by specific social conditions, created after the liquidation of Bin Laden, which practically minimized the role of Al-Qaeda as a global representative of Islamic terrorism. State-forming pretensions of the Islamic state, as a militant organization, indicate political goals, among which the most ambitious of all goals stands out – the creation of a Sunni-Muslim state with a Caliphate as the official form of government. The number of combatants, paramilitary and para-state structures indicate an unparalleled level of sophistication and the highest degree of organization that has ever been seen in a terrorist organization. Repatriated combatants from the Islamic State, who originate from the Western Balkans, represent an undisputable security challenge and a generator of violent extremist views, embodied in the examples of last year's attacks on a police station in Zvornik, and clashes in Kumanovo. The current problem of uncontrolled influx of migrants who arrive from regions which are either under control of the Islamic State, or influenced by it, can reflect significant security consequences on the countries of the European Union, in which these migrants are settling in, but also on the transit countries of the Western Balkans.

*Key words: Islamic State, extremism, Western Balkans, religion, political extremism, Islam, Islamic fundamentalism, terrorism, terrorist organizations*

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## Introductory remarks

Islamic State (IS), i.e. Islamic State of Iraq and Syria or Islamic State of Iraq and al-Sham,<sup>1</sup> (Arabic, ad-Dawlah al-Islāmīyah fīl-'Irāq wa ash-Shām), also known by the acronyms ISIS or ISIL (Islamic State of Iraq and Syria; Islamic State of Iraq and Levant<sup>2</sup>), or DAESH<sup>3</sup> (Arabic, al-Dawlah al-Islāmīyah fī al-'Irāq wa-al-Shām), represents an extremely aggressive and well organized extremist militant organization which aims to become a global representative of Islamic terrorism. It is an organization with transparent doctrine, which aspires to create a global Caliphate as an all-Islamic state ruled by Sharia law and original fundamentalist principles, upon which Islam is based. It considers all Shia-Muslims, Jews and Christians as its enemies. Its name represents its goal.

This paper will attempt to explore the rise of IS and its influence on the Western Balkan countries, particularly on establishing the doctrine of religious-political extremism, and thus the creation of new forms of terrorism. Even though this represents an international problem, which was primarily created on the territory of Iraq, Syria, Yemen, Libya and some Northern African countries, tendencies obviously exist for it to spread to other parts of the world. In spite of this fact, this phenomenon has not been properly analyzed in expert and academic community, which is clearly indicated by the fact that large global powers do not have any adequate solution to the problem, neither military nor political. Fundamental social interest is to clarify the conditions in which a new terrorist organization arises, what are its goals, and to what extent does the political extremism it implements inspires the creation of terrorism in any part of the world, and especially the causal geopolitical and security reflections on the Western Balkan region. To deal with this problem means to compare specific historical conditions in certain regions, in which different social and political factors often intertwine. Therefore, establishing precise limits and definitions within ideological foundations of modern Islamic terrorism and political extremism, as its base, is very complex, but still crucially important for the research of topical phenomenon and processes in political science.

In recent years, significant geopolitical escalations took place in the Middle East and Northern Africa, characterized by inter-ethnic and religious armed conflicts, separatist tendencies, as well as hatred and bigotry between different ethnical groups in the Arab world. These events took place under the auspices of the Arab Spring, through the lens of establishing democracy and overthrowing regimes in Libya, Egypt, Tunisia and Syria. Tactics of destabilization conducted by foreign powers, using military, political and economic interventions, are undoubtedly among the conditions which influenced the creation and development of the Islamic State. The increasing Islamic extremism is a direct consequence of these actions, and it contributed to the development of this

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<sup>1</sup> Sham region, a former Syrian province, included territories of modern day Syria, Lebanon, Jordan, Israel and Palestine.

<sup>2</sup> "Levant", in a broader sense, includes the East, i.e. eastern countries, and refers to the Middle-Eastern region which is oriented towards the Mediterranean; territorial determinant similar to the Sham region.

<sup>3</sup> The term DAESH is considered offensive by the members of the Islamic State, and the penalty for using it, in the territory they control, is 70 lashes of the whip. Members of the IS usually refer to their organization as *il-Dawla*, meaning the state. See more at the European Council on Foreign Relations website - [http://www.ecfr.eu/article/commentary\\_syrias\\_uprising\\_within\\_an\\_uprising238](http://www.ecfr.eu/article/commentary_syrias_uprising_within_an_uprising238), accessed on 30/07/2016

terrorist organization, which is in many aspects unparalleled. Its transparent doctrine is embodied in its very name, i.e. the attempt to create a religiously homogenous Sunni state. The territory which the IS considers its Caliphate, allegedly includes almost half of Asia and Africa, as well as a part of Europe (particularly the Iberian and Balkan peninsula). It goes without saying that this example only confirms the rule, that every political extremism represents a negation of a democratic, constitutional state, regardless of how the extremism might manifest itself in practice (through racism, xenophobia, and similar forms, or through the extremes, like in the case of Islamic terrorism).<sup>4</sup>

The influence of IS on the countries of the Western Balkans is realized in various ways. Direct (explicit) manifestation is possible through the actions of armed groups or individuals, like the attacks in towns of Zvornik and Kumanovo, which happened last year. On the other hand, the influence of repatriated jihadists from the IS is significant, and especially their contribution to the radicalization of the environment they live and operate in. Also, indirect influence can be felt through the massive influx of migrants from the areas controlled by the Islamic State, which represents a severe security risk both for the European Union, and all the Western Balkan countries.<sup>5</sup> There is a concern that, besides France, Belgium and Germany, and Republic of Serbia could also come under fire, primarily due to its heritage of recent conflicts and its geopolitical position, along with Macedonia and Bosnia and Herzegovina.

## The Genesis and Development of the Islamic State

The radical world of Islam, and its current socio-political connotations, which influenced the creation of the Islamic State, represents too complex of a social category, for the West to have a simplified notion of it, as established terrorists and enemies of civilization. It is superficial and naïve to say that IS consists solely of terrorists, and that they will perish once they are militarily defeated<sup>6</sup>, all the more so because what seem to be joint efforts of leading world powers, are providing no success, for quite some time.

The problem of radical Islamism has deeper roots. It is an undisputable fact that religion is an irreplaceable element of Islamic extremism and terrorism. The majority of terrorist organizations derive their ideology from a radical interpretation of Islam. It is also noticeable that extremism is, in practice, often times equated with terrorism, and terrorism is often times equated with other forms of political violence.<sup>7</sup> "Terrorism... begins with a conspiracy and ends with an overt act,"<sup>8</sup> while extremism lurks behind the scenes, and at the same time has the potential to produce far graver consequences than the terrorist act itself. In accordance with this, it can be concluded that extremism includes all political understandings and behaviors (of individuals, groups, organizations) which drastically

<sup>4</sup> DiterNolek, editor, *Politikološki rječnik*; (Osijek: Državaipolitika, 2001), pages 310-314.

<sup>5</sup> Having the frequency of the "Balkans route" in mind

<sup>6</sup> Alastair Crook, (presented at the Advanced Course on International Relations – Geopolitics in the Emerging Multipolar Era, Belgrade, Serbia, July 30<sup>th</sup> – August 6<sup>th</sup>, 2015)

<sup>7</sup> See more on defining the term *terrorism* in: Hoffman, B. *Inside terrorism*, (New York: Columbia University Press, 2006)

<sup>8</sup> Stephen E. Atkins, *Encyclopedia of Modern Worldwide Extremist and Extremist Groups*, (London: Greenwood, 2004)

deviate from what is acceptable, legal and legitimate in political relations and struggles in a democratic society.<sup>9</sup> Only in the indirect sense, extremism implies the use of violence, and thus it is concluded that extremism is more of an attitude, than it is an action, and that it appears as a consequence of mutual social prejudice with deep roots<sup>10</sup>.

In the attempt to explain the flagrant development of the Islamic State, the issue of social conditions which led to the creation of this organization inevitably arises. The environment in which the IS was created is complex and characterized by numerous socio-political relations and tensions which pervade the entire region, going back almost one hundred years. Countries of the Middle East and Northern Africa were, thanks to their specific mentality and consequences of former colonial government, a breeding ground for the development of Islamic movements. The triumph of Israel in the Arab-Israeli war in 1967, additionally accelerated the process, along with the Western interventions in the Gulf War, and later in Iraq, but also with the rise of Al-Qaeda and promotion of global jihadism. The mentioned effects had, and still have, a powerful influence, predominantly on young people, usually from the middle class and of medium level of education, which became sympathizers and members of political-extremist and terrorist groups.<sup>11</sup> Islamic State offers the Muslims the utopia of global Caliphate, thereto achieving significant military results in the region of Iraq and Syria. IS created a Sunni "state" which is larger than Great Britain, and in a territory in which the Sunni were "oppressed" by the Shia majority, even by the Kurds.

Critical events in the Middle East and Northern Africa began with the wave of the so-called *Arab Spring*, which started with the revolution in Tunisia, in 2011, and was then carried over to Egypt, Libya and Syria, where it gained a special dimension, and, according to many, got out of control. Namely, the civil war, which has been raging in Syria for two years now, along with the conflicts in the surroundings, is characterized by complex religious and political relations. President Bashar al-Assad, who belongs to the Alawite branch of Islam, is at the head of the Syrian Arab Republic, a country where the Sunni majority makes about 75% of population, and do not even consider Alawites as Muslims. Besides being a religious group, Alawites are also an ethnical group, similar to Jews and other groups in the Middle East, which were, to some extent, created by religion, which then gave them a crucial determinant of their national identity. Surely the hostility between two denominations of Islam, Shias and Sunnis, is not visible exclusively in Syria. The majority of population in Iraq are Shias, even though Saddam Hussein, a Sunni, ruled Iraq for decades. An armed conflict of limited intensity is active in Yemen, which is also governed by a Sunni ruler (president Abd Rabbuh Mansur Hadi), who rules<sup>12</sup> an equally numerous Shia population.<sup>13</sup>

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<sup>9</sup> See more on the notion of extremism in: Marija R. Đorić, "Teorijsko određenje ekstremizma", *Kultura polisa*, IX, 17, 2012, pages 45-62.

<sup>10</sup> Islamic Extremism: Common concern for Muslim and western public", 17 Nation Pew Global Attitudes Survey, The Pew Global Attitudes Project, 2005.

<sup>11</sup> Randy Borum, *Psychology of Terrorism*, (Tampa: University of South Florida), accessed on 01/10/2015

<sup>12</sup> It is highly questionable whether Hadi is ruling Yemen or not, considering that the rebel groups, mostly consisting of Shia Muslims, took the capital Sana'a in February of this year. Hadi enjoys the support of the majority of the Gulf and Middle-Eastern Sunni countries, primarily in the political, but also in the military segment.

<sup>13</sup> See more on political and religious situation in the Middle East in: Lee, R. and Shitrit, B.L., *Religion, Society, and Politics in the Middle East*, chapter 5, CQ Pres, 2013, available at: [http://www.cqpress.com/docs/college/Lust\\_Middle%20East%2013e.pdf](http://www.cqpress.com/docs/college/Lust_Middle%20East%2013e.pdf), accessed on 08/10/2015

Islamic State, as we know it today, was formed by the merger of Islamic State in Iraq, led by al-Baghdadi and al-Qaeda in Iraq<sup>14</sup>, with initial support of individuals from the al-Nusra Front and other Islamic groups. The key factor is that the entire process took place in the moment when Bin-Laden was executed, and Al-Qaeda, as the *umbrella* organization for virtually all Islamic terrorist groups, almost completely disappeared from the scene. It can be said that IS is somewhat of an offspring of Al-Qaeda,<sup>15</sup> i.e. an organization from which it separated in time (or transformed into its modern form), since IS considers that it surpassed Al-Qaeda, and that it has higher goals.<sup>16</sup> Besides the mentioned, the Arab Spring, and especially the war in Syria, are of pivotal importance for the amazing growth of IS. In a very complex political-security situation, Western powers, pursuing their own geopolitical interests (primarily in the attempt to limit the influence of Russia, China and Iran in the region), supported the rebels who rose against Assad's regime. In such conditions, the *spillover* of the mentioned support inevitably occurred, from the so-called "Free Syrian Army" and other militant groups, which were acceptable allies, to Islamic groups, following the principle "the enemy of my enemy is my friend." The exact number of personnel that IS has is still unknown; their strength is evaluated at around 50.000 fighters or more, of which approximately 20.000 from abroad<sup>17</sup>.

The organization sees itself as a seed from which a transnational Islamic state will sprout, on the territory of Iraq and Syria, as a separate geographical entity. It has combat formations which resemble a conventional army, which inflicts grave losses, both to Syrian and to Iraqi army. It also enjoys a significant support from the common people, who are attracted to the aspiration to transform the radical Sunni movement into a regional state. IS prints money, trades oil, even makes informal international agreements (like the one with Turkey, regarding fighting against the Kurds in exchange for weapons transfer), and to top it all, it controls a large territory. Considering that the Western model of democracy proved to be inapplicable in the Islam mentality, and after military interventions and aspirations for immoderate draining of natural resources, from the standpoint of Islam traditionalists the IS represents a starting point for the fight against globalization, led by the United States. On the other hand, radical Islam implemented by the Islamic State, in the Middle East and Northern Africa, is achieving goals which are identical to the goals of globalization – it is destroying great cultural worlds (unfortunately, in a military sense of the word) and aims to master political and economic space.

Islamic State is also a byproduct of anti-Shia and anti-Iranian fundamentalist struggle, financially aided by Saudi Arabia. Through the geopolitical prism, fundamental interest of Saudi Arabia is not to allow the creation of the so-called "Shia transversal" which would connect Iran and Lebanon (populated by Shia Muslims). On the other side, geo-economic motives of Iran are obvious – establishing a massive unified market. Creating

<sup>14</sup> Also known as the Al-Qaeda of the Arabian peninsula

<sup>15</sup> ISIL differs from Al-Qaeda in numerous things; while Al-Qaeda used one country and its logistics (Afghanistan), ISIL strives to create a state of its own. Unlike Al-Qaeda, al-Baghdadi conquers and keeps territories, ruthlessly dealing with his enemies. It is more sophisticated than Al-Qaeda, it is a dream come true for the extremists, a dream of "genuine Muslim state" and as such, attracts a large number of supporters

<sup>16</sup> Dragan Simeunović, "Islamska država", *Geopolitika*, 2015 (May 12<sup>th</sup>), page 10.

<sup>17</sup> See more on number of foreign fighters in Syria and Iraq: Foreign Fighters, An Updated Assessment of the Flow of Foreign Fighters into Syria and Iraq, The Soufan Group, December 2015

an onshore connection of territories situated between the Indian Ocean (Persian Gulf) and the Mediterranean, avoiding the Gulf of Aden and the Suez Canal, is highlighted as its geostrategic interest.

## Reflections of the Islamic State Activity on the Western Balkan countries

Every terrorism is, in fact, realized extremism. Extremism is generated in different regions, and especially in communities which were governed by undemocratic regimes for an extended period of time, that is to say, where processes like political integration and society modernization remain unfinished. Psychological propensity for extremism in our region was noted by the classic of our ethno-psychology, Vladimir Dvorniković, stating that: "a Yugoslavian man, in accordance with his intellectual dispositions – is a political extremist."<sup>18</sup> This goes to favor the claim that the history of our region was partially conditioned by its geographical position, as well as the psychological foundation of the Balkan peninsula's population.

Current political and security situation in the Balkans has reached its most difficult point since the end of the wars that happened in the '90s. Today, the region is economically, politically and security-wise partially integrated in the European Union architecture, and accordingly in European security structures, but we witness that this concept faces great challenges today.<sup>19</sup> What today concerns Europe and the Balkans the most, security-wise, is the development of the Islamic State on a large part of the territory of Iraq and Syria, as well as other African and Middle-Eastern countries. Finally, the humanitarian crisis, which is caused by an unstoppable wave of refugees from that region, has an expressed economic and security connotation. All these factors make the security situation in the Western Balkan region extremely complex and uncertain. Recent messages of representatives of the Islamic State, directed at the Balkan countries (in the form of a musical video<sup>20</sup>), in which the jihadists announce their arrival, conquering of this region and establishing a Caliphate, shook the region to the core, a region which faces an increasing level of similar threats coming from radical Islamists.

The occurrence of jihadism in our region in the 1990s can be interpreted, from a political standpoint, as the emergence of extreme Muslim right wing. The consequences of these occurrences are reflected in the fact that 10 Wahhabi enclaves are established in Bosnia and Herzegovina, populated by 3.000 Wahhabis, predominantly financially supported by various "humanitarian organizations" from Saudi Arabia<sup>21</sup>. In these environments, the Koran and Sharia (which are considered God's law) become two basic

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<sup>18</sup> Vladimir Dvorniković, *Karakterologija Jugoslovena*, (Belgrade: Prosveta, 1990)

<sup>19</sup> Security concept of the European Union is primarily based on economy and politics, and then characterized by the fact that most EU members are also NATO members

<sup>20</sup> Video message broadcasted on 10/07/2015, on the internet website <http://puthilafeta1.blogspot.rs/>

<sup>21</sup> Violent Extremism in the Western Balkans, 31st RSSEE SG WORKSHOP - Belgrade, Serbia 27 – 29 September 2015, available at

[http://www.bundesheer.at/pdf\\_pool/publikationen/pfpc\\_31st\\_rssee\\_policy.pdf](http://www.bundesheer.at/pdf_pool/publikationen/pfpc_31st_rssee_policy.pdf), accessed on 12/08/2016

sources according to which all legal norms are determined and other types of behavior and lifestyle of individuals and social communities are regulated.<sup>22</sup> The influence of Muslim priests in those environments, but also in other parts of Europe, is primarily based on resisting assimilation and inclusion in broader social flows, which necessarily creates, in time, a division between “us” and “them”. Regarding that the Turkish government has sent 970 clerics — most of whom do not speak German — to lead 900 mosques in Germany that are controlled by a branch of the Turkish Government’s Directorate for Religious Affairs.<sup>23, 24</sup> Therefore a conclusion arises, that radicalized communities in Western Balkans, even beyond the Balkans, act as nursery gardens for extremists, of which some individuals are later recruited to perform terrorist acts.

The occurrence of movements which are increasingly spreading their influence in the Western Balkan region, like Wahhabism and Takfiri movement, each inspired by its leader (Al-Wahhab, Shukri Mustafa), still act within the framework of jihadism, as a type of a base for militant Islamic extremists. Jihadism is an ideological option of Islamic fundamentalism, which aspires to realize its religious and political goals using jihad – understood as a “holy war” and directed mostly against USA, Israel, Christians and other infidels, if they are perceived as adequate enemies at a moment.<sup>25</sup> Negating the right of territory, government or even the right to live, to others represents an exclusive and extremist standpoint, much like Nazism. Only difference being, that in this case, a “higher race” nation was substituted by a nation comprising of “orthodox” Muslims. This exclusivity is a characteristic of Islamic Nazism, expressed in a religious-political form.<sup>26</sup> As this case is all about glorification of Muslim nation (where religious determinant represents the foundation of national identity) and Muslim state – jihadism represents both fascism and Nazism.<sup>27</sup> We can come to a conclusion that the relationship between Nazism, clerical fascism and Islamic terrorism does not lie in favoring religions, but rather in the use of fanaticism in religious behavior.

Security risk brought by the repatriated combatants of the IS, consists of their capability to perform complex attacks, as they are integrated in the environment, know the language and have a better network, enabling them to plan and execute terrorist acts unnoticed. This represents an obvious advantage over an infiltrated group of foreign citizens, who are to some extent monitored by the security services. According to the data gathered by the Kosovar Center for Security Studies, 232 people from Kosovo and Metohija are involved in the conflicts in Iraq and Syria, at this moment (data from January 2015)<sup>28</sup>. The same source

<sup>22</sup> Violeta R. Talović, “Islam kao izvor političke ideologije u Čečeniji”, *Kultura polisa*, 2013, 21, pages 23-46.

<sup>23</sup> Getestone Institute, International Policy Council, available at <https://www.gatestoneinstitute.org/7931/germany-islam-law>, accessed on 10/08/2016.

<sup>24</sup> Even though Turkey is, unlike Saudi Arabia, considered a secular state, its political aspirations indicate that it, using religion, is trying to control a vast Turkish population in Germany

<sup>25</sup> See more on the notion of jihad in: Mirosljub Jevtić, *Džihad*, (Belgrade: Nova knjiga, 1989)

<sup>26</sup> Jihadism is a type of fascism, because it is based on xenophobia, hatred to all non-Islamic and non-Islamic related things, with highlighted anti-Judaism. Tendency to determine entire nations as permanent enemies, due to their religious or ethnical diversity, is a universal mean of extreme nationalism and clericalism, and in this sense, Islamic terrorism is based on various nationalisms, like Arab, Bosnian etc.

<sup>27</sup> Nebojša Vuković and Z. Milosavljević, “Politički oblici ekstremizma”, *Vojno delo*, 2015, 4

<sup>28</sup> “Report inquiring into the causes and consequences of Kosovo citizens’ involvement as foreign fighters in Syria and Iraq”, Kosovar Center for Security Studies, April 2015.



claims that Kosovo tops the list of percentage of combatants involved in the conflicts in the Middle East, in relation to the population, followed by Bosnia and Herzegovina, with Albania coming in fourth.<sup>29</sup> According to the results of the research conducted by *The International Centre for the Study of Radicalisation and Political Violence* in London, there are about 11.000 foreign fighters in IS formations, mostly from France, Germany and Great Britain<sup>30</sup> (when we consider European countries). The presence of foreign terrorist fighters (FTFs) additionally raises the intensity and duration of the conflict, affecting the security situation in their countries of origin, transit and final destination, as well as in the surrounding countries. The United Nations Security Council Counter-Terrorism Committee estimates that about 25.000 people, from about 100 different countries, spent time in conflict zones in Iraq and Syria,<sup>31</sup> which suggests potential religious-political indoctrination of a large number of people.

Potential attacks would definitely destabilize the situation in Western Balkan countries, which are currently at different levels of integration in the Euro-Atlantic security structures. It seems obvious that recent war events and unsolved political circumstances in Serbia, along with the registered presence of Islamic extremists in some regions of Serbia, Bosnia and Herzegovina and Autonomous Province of Kosovo and Metohija, can act as a motive for destabilization of the country. The recently broadcasted video message represents an attempt of the IS to expand, and somewhat promote, its operation to the territory of Serbia, which was labeled as the main target in numerous jihadi messages, Bosnia and Herzegovina, Montenegro and Macedonia. However, the IS does not possess the operational-financial capacities to initiate large-scale operations in this region.<sup>32</sup> Also, potential terrorist targets in the Western Balkan region are not as striking, media-wise, as those in Western Europe. Objectively, ISIS can expand in the region where it was created, meaning the areas of weak and war shook countries like Iraq and Syria, as well as the region of Northern Africa.<sup>33</sup> Islamic State, as well as other terrorist organizations, is not to be underestimated, because even though it cannot establish a global Caliphate, isolated terrorist attacks have been proven to be easily achievable. Recent terrorist attacks in Paris, Brussels, Nice and Munich serve as a reminder of this fact.

The return of the IS combatants in the environments they originated from only promotes the radicalization of the entire region. It is a viable claim that the Western Balkan region is, we can now even say traditionally, a stronghold of extreme Islamists. Regarding this claim, it is important to emphasize that violent extremist movements in the Western Balkans are not a creation of the new age, that is to say that certain segments of society have already been indoctrinated with Islamic extremism, particularly during the wars in the 1990s. Radical Islamists-Salafists are ingrained among Muslims in the

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<sup>29</sup> Ibid.

<sup>30</sup> ICSR, Department of War Studies, King's College London, <http://icsr.info/projects/western-foreign-fighters-syria/>, accessed on 08/01/2016.

<sup>31</sup> <http://www.un.org/en/sc/ctc/docs/2015/0721Special%20Meeting%20Madrid%20-%20General%20background%20Note.pdf>, accessed on 08/01/2016

<sup>32</sup> It should also be kept in mind that the IS considers the Iberian Peninsula as a part of the Caliphate

<sup>33</sup> The spreading of the Islamic State on the region of Turkey is also practically impossible, because Turkey is an important strategic partner of the US, and it aspires to become a member of the EU

Balkans, who are predominantly followers of the Hanafi school of Islam. Unsolved national quarrels, religious fundamentalism, which is increasingly present in Bosnia and Herzegovina and the Autonomous Province of Kosovo and Metohija, along with the fact that a significant Albanian population is present in the south of Serbia, ex members of the so-called KLA and LAPMB with territorial aspirations in that region of Serbia, all affect this complex situation. Also, the presence of Wahhabis in Raška region and constant political tension carried out by some Muslim religious leaders, indicate potential hotspots suitable for actions of combatants who return from the Middle East, having their extremist views and combat experience in mind. This is especially the case in Bosnia and Herzegovina and Kosovo, where some foreign participants of former conflicts in this region settled. Large number of mujahidin, who represent the legacy of former conflicts and who were completely protected and hidden after the war, are present in these territories.

Armed conflicts in Syria, Iraq, Afghanistan, Jordan, Libya and other countries in the Middle East and Northern Africa, resulted in a massive migration of the population, directed towards the countries of the European Union, particularly Germany and Scandinavian countries. Migrant crisis further emphasized deep roots of ethnicity of European national states. The fact that fences are being built between states members of the EU, that inter-state public transport lines are being terminated, and that the Schengen Agreement is being contested and even, to some extent, suspended, supports the claim. Having in mind the number of refugees and inability to efficiently register them and perform security checks, migrant crises gained a pronounced security character, in addition to the humanitarian. Refugee wave which flooded Serbia, enabled a severe number of potential terrorists to infiltrate the countries of the EU, but also the Western Balkan region, which serves as a transit region for this process. Besides the direct security challenges, a conclusion indirectly arises, that too large of a population migration (of Muslim religion, mostly male) can cause a shift in the ethnical map of certain regions of the European Union, which can have future implications on security.

Reactions of some Western Balkan countries clearly indicate that the influence of the IS on this region has been recognized as an undoubtable security challenge. The mentioned information regarding the number of combatants who originate from this region, and who are in the IS formations at this moment, support the claim that all local secular regimes are equally affected by the same problem. The success of national counter-terrorist systems significantly depends on the state of terrorism and the level of terrorist threats to the region, especially in neighboring countries. A potential way for the Western Balkan countries to successfully face terrorism is to create some type of a joint operational-coordination headquarters, which would also include the international forces present in the region, to track the individuals who represent a terrorist-rebellious threat. This would make the spillover of terrorism from one country to another much harder, and give counter-terrorism operations a regional character. As a measure of protection against domestic extremist who are fighting in foreign conflicts, (mostly in Syria, Iraq, but also in Ukraine), in large numbers, Republic of Serbia adopted an amendment of the criminal code, which stipulates prison sentences, from 6 months to 10 years, for those individuals who take part in armed conflicts in other countries. In that sense, other regional countries also attempted to find a solution to this problem.

## Conclusion

It is clear that not a single period in modern history was spared from wars and various conflicts, regardless of the consequences and hindsight conclusions. Geopolitical postulations of conflicts, which can be regarded as the causes of many conflicts, are realized through the aspirations for territorial, political and economic expansion of influence.

Religious fundamentalism is present in all religions, to a greater or lesser extent. However, it is absolutely unacceptable for every religious fundamentalism to be an ideology at the same time; in order to define it in such a way, it has to meet certain conditions: it has to have political goals, it has to possess the appropriate ideological potential for mobilization, and it has to have an offensive character. Islamic fundamentalism has proved itself to be a functional foundation for the generation of Islamic terrorism and other forms of politically motivated violence. These are the very foundations on which Al-Qaeda was formed, followed by Al-Qaeda in Iraq, and finally, the Islamic State, which regenerates and transforms into more advanced forms, like the Hydra (mythological monster). IS achieves its full affirmation riding the wave of the *Arab Spring*, where United States (and a number of Western countries) play an active role in the proceedings, directly aiding the opponents of Assad's regime, which acted as a catalyst for the development of the organization. Today, IS represents a respectable military-political organization, which conducts large-scale combat operations with quite megalomaniacal political goals.

As political extremism (as a form of political action) is invariably a political, and only then a security, social and anthropological phenomenon, the influence it has on political relations is significant. Political extremism, in any form, is a distinctly negative phenomenon, which almost always generates immeasurable consequences (it starts with the persecution of opponents and dissidents, and end with atrocious crimes). Political extremism is also most often the base for the creation of new types of terrorism, and other forms of political violence, like riots, unrests, political homicides, even rebellions of broader proportions, like insurrections etc.<sup>34</sup> If the extremists do not have a political goal, we cannot speak of political extremism, and the political goal of the IS is embodied in its name. The occurrence of some new types of Islamic extremism, like Wahhabism and the Takfiri movement, convinces us of its great potential, as well as the tendency to manifest itself across the world (as jihadism). The power of such trends is immense, especially when we have the creation of the Islamic State in mind, which has outgrown even Al-Qaeda, particularly in massiveness, organization and, the most obvious – brutality.

Direct effect of the IS on the Western Balkan countries is possible by the means of terrorist or other violent acts. Recent attacks on the police station in Zvornik, and fighting in Kumanovo, indicate that the political-security situation in the region is a fertile ground for manifestation of political violence acts. Indirectly, the radicalization of the entire region is obvious, as the consequence of the actions of repatriated combatants from the IS. Countries of the Western Balkans are at the head of the list of the number of volunteers in the Syrian warfare theater, which carries an obvious security risk, along with the

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<sup>34</sup> See more on forms of political violence in: Dragan Simeunovic, *Politicko nasilje*, (Beograd: Radnicka stampa, 1989)

mentioned problem, due to the fact that these are men with substantial combat experience. There is no doubt that a large number of IS combatants from the region (Raška region, Kosovo and Metohija, FYR of Macedonia, Bosnia and Herzegovina, Albania) could correspond with a large number of ISIS fighters from EU and terrorist attacks in Paris, Brussels, Nice and Munich.

After all, previously mentioned attacks on the police station in Zvornik and the attack in Kumanovo, confirm that global jihadism effects the radicalization of the Western Balkans, creating an atmosphere in which political violence is acceptable. Radicalization of the environment, which the repatriated combatants generate, is an already known phenomenon. It encompasses a security connotation conditioned by a large number of people who spent time in Afghanistan during the 1980s, but also those who stayed in Algeria, Somalia, Tajikistan and former Yugoslavia in the 90s, Iraq, Pakistan and Yemen in the 2000s.<sup>35</sup> Relevant indicators imply that mobilization power of jihadism (in this case IS) is sizable, and that it can inspire individuals to perform terrorist attacks. These potential attacks in some regions of Serbia can even transform into an armed rebellion, especially in parts of the Raška region, where a significant number of Wahhabis is already present, as well as in the south of Serbia, where a large number of extremists is present, among the Albanian population.

Exodus of Middle Eastern nations especially affects Europe, as well as the Western Balkan countries, which face a tremendous economic, humanitarian and security challenge. Sudden influx of migrants, who enter Serbia, additionally complicates security circumstances, and although a huge majority of migrants is fleeing from war conflicts, we must not lose sight of the fact that they will represent the target group for the activity of Islamists. Considering that no country in the Balkans can successfully fight against terrorism and the spillover of terrorism on its own, a necessity for joint execution of this security task, in cooperation with international community forces in the region, imposes it self upon the Balkan countries.

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# THE GENOCIDE AND THE COMMAND RESPONSIBILITY IN CRIMINAL LAW OF THE REPUBLIC OF SERBIA

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International criminal law, as a system of legal regulations found in acts of the international community and criminal legislations of individual states, establishes criminal liability and punishments for crimes against international law. These acts represent breaches of the laws and customs of war (international humanitarian law) that violate or threaten peace among nations and the security of mankind. Penalties prescribed for these criminal offences stand for the most severe penalties in contemporary criminal legislation. In some cases, international judiciary (supranational) institutions such as The Nurnberg and The Tokyo Tribunal, The Hague Tribunal, The Rome Court etc. have primary jurisdiction over perpetrators of these criminal offences.

This criminal offence means the killing of a nation or a tribe. Genocide was proclaimed as “a crime under international law, which is in contradiction with the spirit and the aims of the OUN and condemned by the entire civilized world” by UN General Assembly Resolution 96/I from 11 December 1946. Although it emerged as a “subspecies of crime against humanity”, genocide rapidly obtained an autonomous status and contents as one of the most serious crimes of today. As a crime against international law, genocide is determined by three elements: a) the objective component- *actus reus* b) the subjective component- *mens rea* c) the subject of the act-the group-the victim. The source of this incrimination is found in Convention on the Prevention and Punishment of the Crime of Genocide from 1948, which, in paragraph 2, defines the term and the elements of this crime against international law. In legislation, theory and practice, this term can be interpreted in the broader sense, as well. In this paper the author has analysed theoretical and practical aspects of genocide in international criminal law and criminal law of Republic of Serbia (former FR Yugoslavia).

Key words: *international law, humanity, crime, genocide, court, command responsibility, penalty*

## The genocide according in the Criminal code of the Republic of Serbia

### *System of international crimes*

Chapter 34. of the new Criminal Code of The Republic of Serbia<sup>1</sup> contains the following "genuine" crimes against international law:

- 1) genocide (paragraph 373),
- 2) crime against humanity (paragraph 371),
- 3) war crime against civilian population (paragraph 372),
- 4) war crime against the wounded and sick (paragraph 373),
- 5) war crime against prisoners of war (paragraph 374) and
- 6) organizing and incitement to Genocide and War Crimes (paragraph 375).

### *The notion and basic characteristics of the genocide*

The crime of genocide, from paragraph 370. of The Criminal Code of The Republic of Serbia, consists of ordering or committing the following acts: killing or causing serious bodily or mental harm to members of the group, deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part, imposing measures intended to prevent births within the group, forcibly transferring children of the group to another group, with intent to destroy, in whole or in part, a national, ethnical, racial or religious group of people.<sup>2</sup>

The word "genocide" is a compound, created from a Greek word *genos*, meaning nation or tribe, and a Latin word *caedes*, which means killing or slaughter (massacre). When translated literally this word stands for the extermination of an entire nation or tribe.<sup>3</sup> Genocide was proclaimed as "a crime against international law, which is in contradiction with the spirit and the aims of the OUN and condemned by the entire civilized world" by OUN General Assembly Resolution 96/1 from 11 December 1946.

In spite of the fact that it initially emerged as a "subspecies of crime against humanity", genocide rapidly obtained autonomous status and contents as one of the most serious crimes of today. Nowadays, it is also called "the crime above all crimes". As a crime against international law, genocide is determined by three elements:<sup>4</sup>

- 1) the objective component – *actus reus*,
- 2) the subjective component – *mens rea* and
- 3) the subject of the act – the victim (the group).

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<sup>1</sup> Official journal of the Republic of Serbia No. : 85/2005, 88/2005, 107/2005, 72/2009, 111/2009, 121/2012, 104/2013 and 108/2014. More: D. Jovašević, Krivični zakonik Republike Srbije sa uvodnim komentarom, Beograd, Službeni list, 2007.

<sup>2</sup> D. Jovašević, Krivično pravo, Posebni deo, Beograd, Dosije, 2014. pp. 305-311.

<sup>3</sup> S. Zadnik, Kaznena djela protiv vrijednosti zaštićenih međunarodnim pravom i novine u zakonodavstvu u svezi sa tim djelima, Hrvatska pravna revija, Zagreb, No.12, 2003. pp. 83-86.

<sup>4</sup> D. Radulović, Međunarodno krivično pravo, Podgorica, Kultura, 1999. p. 103.

The source of this incrimination is found in Convention on the Prevention and Punishment of the Crime of Genocide<sup>5</sup> from 1948, which defines the contents and the elements of this crime against international law.

In legislation, theory and practice this term has a more extensive interpretation. Namely, this expression includes not only killing but also extermination, committed in any other way, of a particular group that forms a consistent entity based upon national, ethnical, racial or religious foundation. The subject of protection includes humanity and international law.

The subject of attack is a national, ethnical, racial or religious group.<sup>6</sup>

A national group is comprised of people who have the feeling of sharing the legal bond of the same citizenship accompanied by reciprocal rights and obligations.

An ethnical group consists of the members who are bound by the same language and culture, whereas a racial group is a group based upon hereditary physical characteristics, which is often associated to a particular geographical area regardless of linguistic, cultural, national, or religious factors.

A religious group includes members who share the same religious convictions, the same name of the confession or the same means of conducting religious ceremonies.

In fact, the terms such as national, ethnical, racial or religious group are still being studied widely and precise definitions that would be universally and internationally accepted have not been found yet. Thus, each of these terms has to be assessed in the light of an actual political, social and cultural milieu.<sup>7</sup>

Although the act is committed by destroying individuals, it is not intended to eliminate those individuals as separate persons, but as the members of the group. Depending on the actual subject, genocide can appear as national or ethnical genocide or ethnocide if the subject is a national or an ethnical group.

In the case of racial genocide, the criminal act is directed against a particular racial group or against several groups of that kind. Religious genocide is directed against the members of one or more religious groups. The group is not to be determined in accordance with an objective or static criterion. Instead, the way the perpetrator perceives the members of the group is of fundamental importance for the definition of this term, which is also the standpoint of the ad hoc tribunals.<sup>8</sup>

The lack of definitions of genocide that would include cultural genocide comprised of destroying the language or the culture of a particular group is often stressed in legal theory.

Therefore, the aim of the act is to destroy a group, in whole or in part, whereas the elimination of an individual simply represents a means of its accomplishment. The size of the group is of no significance for the completion of the criminal offence. It is essential that the group is present as an entity carrying specific characteristics, and that it is intended to be destroyed as such. The objective of the incrimination is to guarantee the right to life, i.e. existence and development for each group carrying specific national, ethnical, racial or religious features, regardless of the spatial cohesion of its members.

<sup>5</sup> Official journal of the SFR Yugoslavia No. 56/1950.

<sup>6</sup> D. Jovašević, Komentar Krivičnog zakona SR Jugoslavije, Beograd, Službeni glasnik, 2002. pp. 11-17.

<sup>7</sup> D. Jovašević, Međunarodno krivično pravo, Niš, Pravni fakultet, 2011. pp. 89-93.

<sup>8</sup> B. Petrović, D. Jovašević, Međunarodno krivično pravo, Sarajevo, Pravni fakultet, 2010, pp. 219-221.



The act consists of several acts that can be classified in a number of groups. These are the following acts:<sup>9</sup>

1) killing or causing serious bodily or mental harm to members of a specific national ethnical, racial or religious group,

2) inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part,

3) imposing measures intended to prevent births within the group (the so-called biological genocide) and

4) forcible transfer of children from one group to another intended to cause the loss of their group identity.

All these acts<sup>10</sup> contribute to physical and biological completion of genocide. To complete this act, it is enough to commit any of the acts precisely pointed out in the law, with the intent to exterminate (destroy), in whole or in part, a group as a social entity. Genocide represents a typical example of criminal offences that rest upon the „depersonalization of the victim“, which means that the victim does not represent the objective (aim) of the act due its individual qualities or features, but solemnly for being a member of a certain group.

The perpetration can be completed in two ways:<sup>11</sup>

1) by ordering and

2) by directly conducting certain acts.

Giving orders to commit the abovementioned acts represents a special and autonomous act of genocide. In fact, ordering is a form of incitement. However, in this case ordering is not characterized as complicity, but as a special way to perpetrate this criminal offence. The crime of genocide is usually committed in an organized manner and in accordance with a previously arranged plan giving particular authority to the order of a superior, which causes the autonomous nature of his responsibility. Therefore, the superior will be responsible only for having given the order to commit genocide, even if the subordinate refuses to obey or in any other way manages to avoid executing such order.<sup>12</sup>

The consequence of the act is manifested as threatening the survival of a certain national, ethnical, racial or religious group. It can be accomplished through causing a smaller or a larger number of individual consequences comprised of injuries (of life, of physical integrity, of a fetus) and threats (by inflicting on the group unbearable living conditions).<sup>13</sup> The number of individual acts committed is of no significance for the completion of this criminal offence. This means that only one act of genocide will be committed when one, as well as when several relevant acts have been conducted. The fact that a larger number of acts causing various individual consequences were committed has an impact on the determination of sentence. This indicates that planned and systematic extermination of human groups constitutes the essence of the crime of genocide.<sup>14</sup>

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<sup>9</sup> S. Fabijanić Gagro, M.Škorić, Zločin genocida u praksi međunarodnih ad hoc tribunala, Zbornik Pravnog fakulteta u Zagrebu, Zagreb, No. 6, 2008. pp. 1387-1419; V. Đ. Degan, Zločin genocida pred međunarodnim krivičnim sudovima, Zbornik Pravnog fakulteta u Zagrebu, Zagreb, No.1-2, 2008.pp.77-95.

<sup>10</sup> A. Kaseze, Međunarodno krivično pravo, Beograd, Beogradski centar za ljudska prava, 2005. pp. 115-117.

<sup>11</sup> D. Jovašević, V. Ikanović, Međunarodno krivično pravo, Banja Luka, Univerzitet Apeiron, 2015, pp. 312-315.

<sup>12</sup> S. Horović, Genocid, ratni zločini i zločin protiv čovečnosti, Zbornik Pravnog fakulteta u Mostaru, Mostar, 2004. pp. 99-113.

<sup>13</sup> Lj. Lazarević, B.Vučković, V.Vučković, Komentar Krivičnog zakonika Crne Gore, Cetinje, Obod, 2004. pp. 1021-1023.

<sup>14</sup> F. Bačić, Krivično pravo, Posebni dio, Zagreb, Pravni fakultet, 1986. p. 316.

Any person can be the perpetrator of this act, and, when guilt is concerned, direct premeditation (*dolus coloratus*), including genocidal intent, is required. Instead of applying the theory of intent, the assessment of such intent is based upon experience. The punishment prescribed for this act is minimum five years' imprisonment or thirty to forty years' imprisonment. The Criminal Code explicitly points out that this criminal act cannot be subject to limitation for criminal prosecution and enforcement of penalty.

### *The crime against humanity*

At last, genocide and crime against humanity (that are often treated as equal by legal theory as well as by certain international legal acts such as the Statute of the International Military Tribunal in Nürnberg) have several similar features including the following:<sup>15</sup>

- 1) in both cases, the acts are aimed to cause massive killing of other persons,
- 2) both acts include severe violations that insult humanity and
- 3) neither of the acts represents an isolated case, but is usually a part of a broader conception.

However, one can perceive evident dissimilarities between them, including the following:<sup>16</sup>

- 1) genocide contains genocidal intent, whereas crime against humanity does not,
- 2) the target population of genocide is a group that has to possess shared group characteristics, while the victims of crime against humanity are determined by political preferences, physical characteristics or by the very fact that they found themselves on a certain area in a certain period of time,
- 3) crime against humanity represents a broader term since it is committed within an extensive and systematic attack the perpetrator is aware of, which is not requested as an essential and constitutive element of the crime of genocide and
- 4) crime against humanity can be committed by conducting a wider range of diverse acts, not all of which are covered by the term of genocide.<sup>17</sup>

### Responsibility of a superior (command responsibility)

Criminal legal system of The Republic of Serbia decisively supports the standpoint according to which criminal responsibility as a personal (individual) and subjective responsibility of a perpetrator or an accomplice represents the ground for enforcement of penalties and other criminal sentences.

Apart from subjective criminal responsibility, the latest Criminal Code from 2005 is familiar with the institution of responsibility of a superior as well. Actually, responsibility of a superior as a form of "objective" responsibility is also provided by the Statute of the

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<sup>15</sup> Z. Pajić, *Zločin protiv čovečnosti – problem međunarodne odgovornosti*, Jugoslovenska revija za međunarodno pravo, Beograd, No. 2-3, 1986. pp. 304-316.

<sup>16</sup> B. Petrović, D. Jovašević, A. Ferhatović, *Krivično pravo 2*, Sarajevo, Pravni fakultet, 2016, pp. 242-244.

<sup>17</sup> D. Jovašević, *Međunarodna krivična dela – odgovornost i kažnjivost*, Niš, Pravni fakultet, 2010. pp. 263-268.

permanent International Criminal Court and can be applied by national judiciary authorities in criminal proceedings against the persons who committed some of the criminal offences from Chapter 34. of The New Criminal Code of the Republic of Serbia entitled "Criminal Offences Against Humanity And Other Rights Guaranteed by International Law".<sup>18</sup>

In accordance with these solutions, the new Criminal Code of The Republic of Serbia from 2005 actually stipulates criminal responsibility and liability for punishment in the case of "responsibility of a superior"<sup>19</sup> in its paragraph 384. under the title "Failure to Prevent Crimes against Humanity and other Values Protected under International Law". In fact, this provision stipulates a particular crime against international law that is comprised of failure to act. There are several forms of this criminal offence.

This legal provision also stipulates a particular form of criminal responsibility of a person who does not undertake the necessary measures to prevent the commission of the following criminal offences against humanity and other rights guaranteed by international law:<sup>20</sup>

- 1) genocide,
- 2) crime against humanity,
- 3) war crime against the civilian population,
- 4) war crime against the wounded and sick,
- 5) war crime against the prisoners of war,
- 6) employment of prohibited means of warfare,
- 7) unlawful killing and wounding of enemy,
- 8) unlawful appropriation of objects from bodies,
- 9) violation of protection granted to bearer of flag of truce/emissary,
- 10) cruel treatment of the wounded, sick and prisoners of war and
- 11) destroying cultural heritage.

These acts actually represent the preparation for the commission or the commission of the gravest criminal offence of today.

The first form of this criminal offence can be committed by a military commander or a person who in practice is discharging such function. It is therefore a criminal offence that can be committed only by a perpetrator with particular characteristics i.e. *delicta propria*. This criminal offence includes the following three elements<sup>21</sup>:

- 1) that the perpetrator was aware or conscious of the fact that other persons were conducting preparations or directly committing the enumerated crimes against international law,
- 2) that crimes against international law were committed by the persons who entered the forces within the perpetrator's command or control and
- 3) that the perpetrator did not undertake (failed to undertake) the measures that he could have and was obliged to undertake in order to prevent the commission of the above mentioned crimes against international law, which actually resulted in their commission.

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<sup>18</sup> D. Jovašević, *Krivično pravo, Opšti deo*, Beograd, Dosije, 2016. p. 229-232.

<sup>19</sup> B. Kozjak, *Zapovjedna odgovornost u međunarodnom i hrvatskom kaznenom pravu*, Odvjetnik, Zagreb, No. 5-6, 2001. pp. 37-40; B. Brkić, *Zapovjedna kaznena odgovornost – mogući teoretski i praktični aspekti*, Hrvatska pravna revija, Zagreb, No. 2, 2002. pp. 111-116.

<sup>20</sup> D. Jovašević, *Međunarodna krivična dela – odgovornost i kažnjivost*, Niš, Pravni fakultet, 2010. pp. 189-193.

<sup>21</sup> B. Ivanišević, G. Ilić, T. Višnjić, V. Janjić, *Vodič kroz Haški tribunal*, Beograd, 2007. pp. 133-151.

The punishment prescribed for this criminal offence is the same punishment that would be imposed on the direct perpetrator of some of the enumerated crimes against international law.

Hence, the fact that some of the above mentioned criminal offences were committed by a subordinate does not absolve his superior from criminal responsibility.

The second form of this criminal act from paragraph 384 of The Criminal Code of The Republic of Serbia is related to the failures of other superiors to act, which resulted in the commission of the mentioned crimes against international law. This criminal offence requires that three following elements are met:<sup>22</sup>

1) that the perpetrator knew or was aware of the fact that other persons were preparing or directly commencing the commission of the enumerated crimes against international law,

2) that these crimes against international law were committed by perpetrator's subordinates, i.e. the persons who were subordinated to him in the execution of their tasks and

3) that the perpetrator did not undertake (failed to undertake) the measures that he could have and was obliged to undertake in order to prevent the commission of the above mentioned crimes against international law, which actually resulted in the commission of these acts.

The punishment prescribed for this criminal offence is the punishment of imprisonment that can be imposed on the direct perpetrator of one of the enumerated crimes against international law. If one of the forms of this criminal offence was committed by negligence as a form of guilt, an imprisonment of six months to five years is prescribed.

## The common criminal design (joint criminal enterprise) – new form of criminal responsibility

When criminal responsibility is concerned, a special form of responsibility for crimes against international law called common criminal design,<sup>23</sup> common purpose<sup>24</sup> or joint criminal enterprise has lately been more and more frequently discussed in the theory and even more in the practice of international criminal law.

These standpoints (theories) are based upon the fact that the majority of crimes against international law do not represent a result of a single person's conduct or decision. In fact, crimes against international law committed in those situations represent a result, i.e. a consequence of joint enterprise of several persons who either directly perpetrated these criminal offences or inspired others to do so or planned or otherwise facilitated direct commission of these criminal offences. The use of this ground for criminal responsibility

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<sup>22</sup> D. Jovašević, *Krivično pravo, Posebni deo*, Beograd, 2014. pp. 336-337.

<sup>23</sup> This term was first created in the English law of the 14<sup>th</sup> century and then transplanted and further developed in the American criminal law, especially in the provisions related to organized crime. It is based upon the effort to make the proving of grave criminal offences easier, which enables the group of possible perpetrators to be expanded by including persons who otherwise could not be considered as perpetrators of such criminal offences. This is also a way of creating a new form of common or collective guilt.

<sup>24</sup> It is thought that this institution was implemented for the first time in the appeals judgment of The Hague Tribunal in the Tadić case in 1999.

under international criminal law implies that all the members of the group acting with a “common purpose” are considered as responsible for a crime against international law.<sup>25</sup>

According to the practice of The Hague Tribunal (Tadić case)<sup>26</sup> common criminal purpose exists if the following constitutive (objective) elements are fulfilled:

1) the presence of several persons<sup>27</sup> on a specific level of cohesion. Such cohesion does not necessarily have to indicate the presence of a consistent organization with the form of a military, police, political or administrative structure, but a certain form of joint enterprise is required,

2) the presence of a common project, plan, conception or purpose that includes the commission of a crime against international law. Such plans or purposes do not necessarily have to be strictly arranged or previously formulated. They can also be “improvised” or even “accepted on the spot” by the persons acting together and

3) the participation of the perpetrator in such common criminal design (the contribution of the perpetrator). Such participation does not have to be confirmed by the commission of a criminal offence. The act of the perpetrator comprised simply of helping or facilitating or other contribution to the process of the commission of a common plan or purpose is considered as sufficient.<sup>28</sup>

The Statute of the International Criminal Court (The Rome Statute) also prescribes joint criminal enterprise in its paragraph 25. subpart 3. point “d”. According to this provision, a person shall be criminally responsible for a crime within the jurisdiction of the Court if that person contributes to the commission or attempted commission of such a crime by a group of persons acting with a common purpose.

The institution of joint criminal enterprise significantly differs from the traditional continental system of criminal law. It is said to have the following missing:<sup>29</sup>

1) it allows a person to be considered as guilty although that person did not have the intent (consciousness and will) that would give reason for the constitution of guilt,

2) guilt is imposed on one person for the predictable actions of another (without clear arguments),

3) significantly different acts of persons who participate in the commission of a criminal offence are wrongfully treated as equal,

4) it is not in accordance with the principle of legality and

5) the existence of this institution is especially disputable when it comes to proving, since it allows the innocent persons to be punished as well.

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<sup>25</sup> D. Jovašević, *Međunarodna krivična dela – odgovornost i kažnjivost*, Niš, Pravni fakultet, 2010. pp. 191-194.

<sup>26</sup> The institution of joint criminal enterprise has been used several times in: 1) the practice of The Hague Tribunal: judgment 00-39-T (The Krajišnik case), judgment 98-32 (The Vasiljević case), judgment: 95-14 (The Blaškić case) and judgment 98-33 (The Krstić case), 2) the practice of The Rwanda Tribunal: judgment 96-17 (The Nkurutimana case) and 3) the practice of Special Panels for Serious Crimes in East Timor through the judgments in the following cases: Pereira, Domingos de Deus and Cardoso

<sup>27</sup> A participation of a smaller number of persons in the commission of particular crimes on a limited territory is considered as enough to form “the presence of several persons” in the sense of joint criminal enterprise. These persons need to know (be familiar with) each other because they act together and there is a consent among them on the commission of criminal offences.

<sup>28</sup> B. Ivanišević, G. Ilić, T. Višnjić, V. Janjić, *Vodič kroz Haški tribunal*, Beograd, 2007. pp. 119-121.

<sup>29</sup> M. Damaška, *Boljke zajedničkog zločinačkog poduhvata*, Hrvatski ljetopis za kazneno pravo i praksu, Zagreb, No. 1, 2005. 3-11.

Such contribution shall be considered as intentional and shall either:<sup>30</sup>

1) be made with the aim of furthering the criminal activity or criminal purpose of the group, where such activity or purpose involves the commission of a crime within the jurisdiction of the Court or

2) be made in the knowledge of the intention of the group to commit the crime.

Joint criminal enterprise can emerge in three forms. Those are:

1) the responsibility of all the members of the group acting with a common purpose and with a common intent to commit a particular crime against international law. In such case, not all the members of the group have to conduct direct perpetration of such criminal offence. But, if one of them voluntarily participated in an aspect of the common plan with the intent to commit such crime against international law as a result of joint enterprise, all of them will be considered as responsible and

2) the responsibility for "concentration camps", where all the persons on high positions within the camps in which these criminal offences were committed are also considered as perpetrators in spite of the fact that they did not participate in the direct perpetration.

According to the practice of The Hague Tribunal, a common plan is considered to exist in the following cases:<sup>31</sup>

- a) long term and routine imprisonment and captivation of another nation's members,
- b) repeated torture and beating of the imprisoned persons,
- c) murder of the imprisoned persons,
- d) frequent and long lasting forced labor of the imprisoned persons and
- e) maintenance of inhumane conditions in the prison building.

The use of this form of responsibility requires that the following conditions are met :

1) an organized system of maltreatment of the imprisoned persons that includes the commission of some of the crimes against international law,

2) perpetrator's awareness of the nature of this system of maltreatment and

3) the fact that the perpetrator encouraged, helped, supported or otherwise participated in the conduction of the common criminal purpose due to the fact that he had the permission and the possibility to supervise the imprisoned persons and to make their life supportable and acceptable (satisfactory), but failed to do so and

4) the responsibility for the crime against international law that stands beyond the frames of the joint criminal purpose but still represents its natural and predictable consequence. This is the so called "extended" joint criminal enterprise.

## *Conclusion*

International criminal law, as a system of legal regulations found in acts of the international community and criminal legislations of individual states, establishes criminal liability and punishments for crimes against international law. These acts represent breaches of the laws and customs of war (international humanitarian law) that violate or threaten peace among nations and the security of mankind. Penalties prescribed for

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<sup>30</sup> K. Ambros, Joint criminal enterprise and command responsibility, *Journal of International Criminal Justice*, No. 5, 2007. pp. 159-183.

<sup>31</sup> D. Jovašević, V. Ikanović, *Krivično pravo, Opšti deo*, Banja Luka, Univerzitet Apeiron, 2012, pp. 193-194.

these criminal offences stand for the most severe penalties in contemporary criminal legislation. Due to its significance, nature and character, the crime above all crimes stands out among all the crimes against international law. It is the crime of genocide.

The act of genocide consists of ordering or committing: killing, causing serious bodily or mental harm to members of a human group or deliberately inflicting on the group conditions of life calculated to bring about its extinction in whole or in part or imposing measures intended to prevent births within the group or forcibly transferring children to another group, with the intent to destroy, in whole or in part, a national, ethnical, racial or religious group of people.

This criminal offence means the killing of a nation or a tribe. Genocide was proclaimed as “a crime under international law, which is in contradiction with the spirit and the aims of the OUN and condemned by the entire civilized world” by UN General Assembly Resolution 96/I from 11 December 1946. Although it emerged as a “subspecies of crime against humanity”, genocide rapidly obtained an autonomous status and contents as one of the most serious crimes of today.

As a crime against international law, genocide is determined by three elements: a) the objective component – actus reus b) the subjective component – mens rea c) the subject of the act-the group-the victim. The source of this incrimination is found in Convention on the Prevention and Punishment of the Crime of Genocide from 1948, which, in paragraph 2, defines the term and the elements of this crime against international law. In legislation, theory and practice, this term can be interpreted in the broader sense, as well. Namely, this term does not include only killing but also destruction, committed in any other way, of a particular group that forms a consistent entity on national, ethnical, racial or religious grounds.

Established within the frames of international law of war and international humanitarian law, international criminal law obtained its “citizenship” at the beginning of the third millennium as the newest criminal legal discipline. When The Rome Statute of the International Criminal Court came into force, this branch of law was finally inaugurated in substantial, procedural and executive sense. Even earlier than that, this branch of law had been evolving through the development of basic criminal legal terms and institutions within a series of international legal documents (of universal and regional character) or contracts between individual states as well as through the practice of the courts (first of all, the practice of the Nürnberg and Tokyo Tribunals).

The latter include the following:

1) crime against international law (which differs from a criminal offence with an international element) that can emerge in two forms: as a crime against international law in the narrow sense (genuine) or as a crime against international law in the broader sense (counterfeit or mixed),

2) criminal responsibility of the perpetrator (the precondition for criminal responsibility is the fact that the perpetrator is more than 18 years old), who can appear either as one person or include several persons or even a legal person such as a state or an organization and

3) the system of criminal sentences i.e. punishments that are being imposed by the supranational judiciary authorities.

These fundamental terms and institutions of international criminal law are discussed in this paper.

Because of the nature, the character and the hazard of crimes against international law, this branch of law is familiar with a special form of objectified responsibility besides individual criminal responsibility. It is the responsibility of political and military superiors

for the crimes against international law committed by their subordinates, known as the responsibility of a superior, which is entering national criminal legislations through relevant international standards. Accordingly, the latest Criminal Code of The Republic of Serbia from 2005. also includes this institution.

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# SCIENTIFIC DEVELOPMENT OF NOTIONAL DETERMINATION OF BASIC TERMS OF DEFENCE SCIENCE

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There is clear relationship between science and civilization. Development of science is determined by the development of civilization. This is a reversible process of interdependence of science and civilization. Also, the genesis and development of civilization are monitored by conflicts among the tribal communities, and the emergence and development of the states, between citizens of them and nations. In essence, the development of civilization is directly related to the human ability to create, but also to destroy. In these conditions, conflicts arise and escalate into wars and the discovery of gunpowder and firearms in armed conflicts. Systematization of experiences from armed conflicts has enabled the creation of a unique scientific theoretical fund, which provides understanding of development of the uses of military units in armed conflicts.

As a result of the development of this fund military science or science of defence created and developed. Exponential technological development of weapons systems and military equipment (military asset) improves the manner of use of military units and significantly complicates the organizational and combat structure of the army. Complexity of the organizational structure of the military influences on the development of science of defence and the emergence of a lot of number of scientific disciplines from the specter of the indigenous science of defence.

In this paper it is presented a scientific review of the notional categorization of development of basic science of defense. In addition to the introduction and conclusion, the paper consists of two more parts. The first part deals with theoretical determination science of defence. In the second part it was given the classification of the science of defence and notional definition of the basic science of defence and their subjects and objects.

Key words: *Science of Defence, Strategy, Operational Science, Tactics*

## Introduction

The emergence of science, as a result of the development of epistemological method of thinking, inherent to the human race, is a consequence of the development of civilization, as well as qualitative differences between the human race and other living beings.

Since the emergence of the first philosophical directions, such as Metaphysics (the essence of the existence of objective reality is in balance and stationary, and every movement is focused on establishing a new state of stationary between the phenomena) and Dialectic (the essence of the existence of objective reality is in movement and stationary is essentially a balance between the process of moving the phenomenon of objective reality), the development of civilization has enabled the creation of science of defence system. And while metaphysics formed the basis for the development of natural, dialectic enabled the development of social science.

There are many definitions of science. For example, according to the Dictionary of Serbo-Croatian literary language "Science is defined as a system of knowledge and laws of development of nature, society and thinking "(Dictionary of Serbo-Croatian literary language, book 3). According to another conception of "Science is a system of knowledge in a particular subject area. There is a perception that science is not a system of knowledge rather than activity, it is the striving of human to get closer to the truth about the world that surrounds us. According to Đura Sušnjić "Science is a distinctive method by which human being explains and understand the world around them and himself in the world [11]".

According to Momčilo Sakan "Science is systematized and substantiated knowledge of the objective world which is obtained through the conscious application of certain research methods [8]". Acceptable is the definition that science is a set of systematic methodological verified knowledge of a particular area of objective reality.

In accordance with the development of civilization thoughts originates and other science, whose object of study, or particular area of objective reality increasingly narrows. In those conditions science of defence are developed by military theorists. Their development is directly related to the development of technological solutions in the defence industry and military scientific thought, as an integral part of the intellectual elite of a society.

## Theoretical determination of Defence Science

Defining science of defence is complicated from the point of application of different phrases in science theory. For example, science of defence is often called the military science (or art of war). Namely, taking into consideration the military and doctrinal orientation of the Republic of Serbia, phrase science of defences is more acceptable than phrase military science.

However, this replacement in terminology can become inadequate bearing in mind that the defence of the Republic of Serbia is realized by engaging the available human and material resources of the Serbian Army and other forces of defence. These resources engage to protect the sovereignty, independence, territorial integrity and security (Defence Strategy of the Republic of Serbia, Belgrade, 2008, p. 13).

In The Law on Defence it is noted that "The System of Defence is the part of national security and a unique form of organization and preparation for the performing of defence tasks, implementation of measures and actions for the needs of citizens, public institutions, companies and other legal entities for the use of the Army of Serbia and other forces of defence during the war and emergency situations". So the defense is manifested by the performing of functions of the Army, as well as another defence forces. Taking

into consideration aforementioned it should be noted that, during the existence of complex security threats to the state, the main tasks will be performed by the Army, which justifies the use of terminological phrase military science from the logical and methodological point of view.

Throughout history, numerous theorists who have attempted to define and classify the science of defence. The most of these efforts were aimed at identifying areas of objective reality which would represent the subject of science of defence, as well as the basic criterion for their classification.

According to Momčilo Sakan, the basic criteria for the classification of science of defence are [ 8 ]:

- generality,
- the nature of the object of science,
- connections between the science and disciplines,
- rationality,
- importance,
- state of current practice,
- pragmatism,
- similarities and differences,
- belonging to the indigenous science and
- development of constituents of science.

As well as other, military science has developed the following constituents:

- subject,
- object,
- theory,
- methods and
- language.

From the point of view of theoretical determination the subject and object of science of defence are particularly important. Specifically, according to Vucinic, the subject of science (war, armed warfare, armed forces, etc.) is something what connects the science dealing with military issues (defence complex in the system of military science or science of defence). The basis, cohesive factors (inner circle) of the system are:

- strategy (war),
- operational science and
- tactics.

Other science (military sociology, military history, military economy, etc.) are on the outer circle of the system [13]. It should be noted that the classification (military) strategy, operational science and tactics, as a discipline of the art of war, is outdated, and it is directly related to the development of scientific thought and civilization in all spheres of social life.<sup>1</sup>

One example of classification of science of defence (military science) is shown in figure 1.

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<sup>1</sup> According to M. Sakan there are three reasons why phrase the art of war can not means the science of defence. The first reason is that this phrase is associated with skills (not on science). The second reason is the logical character because it reminds that the war has some skill, which is not possible (the war is not the subject). The third reason is that it is associated with a complex social phenomenon, not the armed warfare as an object of science of defence [9].

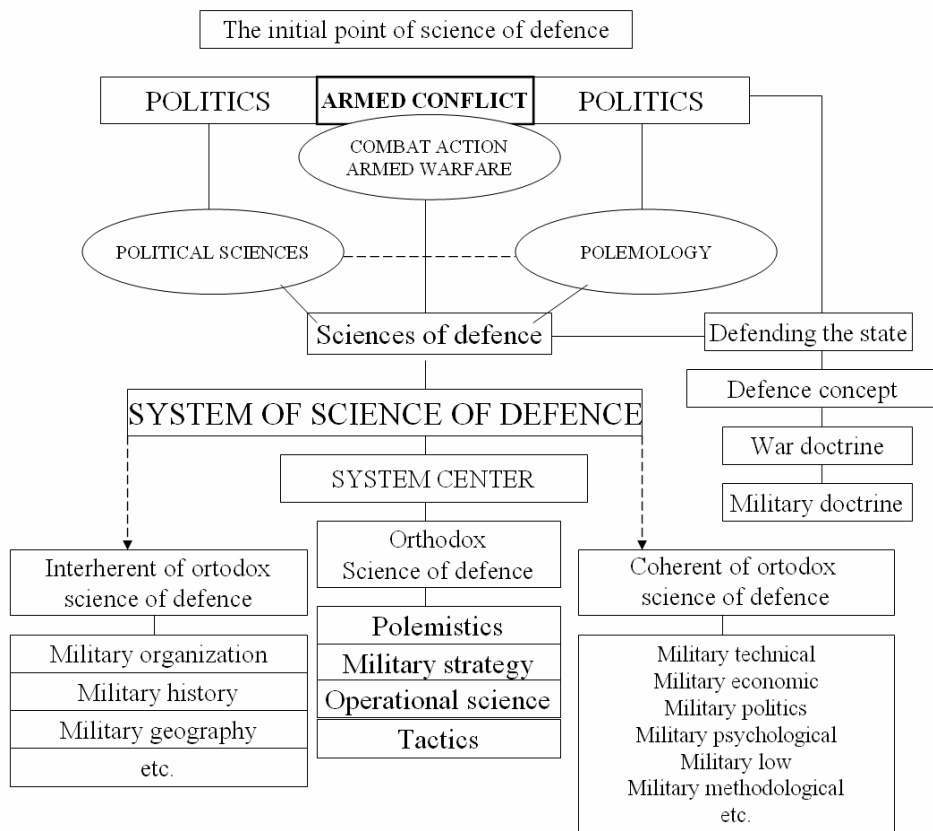


Figure 1 – Classification of science of defence (according to criteria spheres of social life and activities in armed conflict)

Those phrases originate from the ancient times when a scientific and professional knowledge, which is related to the practical operation, termed skills. For example, logic was called the art of thinking, rhetoric was the skill of speech, math was called skill of computation. At present those "skills" have become science, and most of them and system of science, based on scientific facts which are proven applying the scientific methods, and with developed theory and language.

According to Momčilo Sakan, the science of defence can be defined as "The systematic and substantiated knowledge about armed warfare which were gathered conscious application of certain research methods [ 9 ]".

Acceptable definition is that the science of defence is a set of systematic methodological verified knowledge about armed warfare as the main content of the armed conflict.

Taking into consideration the numerous disagreements about the object of indigenous science of defence between the Western and Eastern military theorists (after the

Second World War Yugoslav Military thought accepted the Eastern classification of the indigenous science of defence on tactics, operational science and (military) strategy. Unlike the East, to the West there is a dual classification of the indigenous science of defence on tactics and (military) strategy. Those disagreements were significantly influenced the determination of the object of science of defence in this region.

Definition of the object of science of defence requires previously the theoretical determination of terms armed conflict and operation.

## Theoretical determination of Operation, Armed Conflict and Armed Warfare and the logical relationship between these terms

According to the Doctrine of Operations, armed conflicts represent a process of mutual destruction of the conflicting adversaries. They can be a result of the conflict of political interests between states, within states, or a result of religious and ethnic tensions, damaged elements of national force, social collapse, shortage of natural resources, organized crime and corruption. Acceptable definition of armed conflict is that it represents the military - technological social phenomenon (genus proximum - senior notion in relation to the term that is defined) in which the mutual destruction of two or more adversaries to the conflict realize political, economic, military, diplomatic or confessional aims of the conflicting adversaries, which could not be achieved by other activities (diferencia specifica – specific differences notion which is defined in relation to all the other terms contained in the senior notion) [4]. For the armed conflict is characteristic regular (legal) use of armed force in achieving the aims. In recent decades, the traditional armed conflicts, which have historically been mostly symmetrical, have got a totally new dimension [4]. Namely, the symmetry, from the point of view of military force, economic, political and diplomatic influence of conflicting adversaries in recent decades slowly becomes dissymmetry, and the main role in achieving conflict aims takes Air Force and Air Defence (AFAD). Namely, not only that air and air defense operations, i.e. forces that carry out operations, influence the outcome of contemporary armed conflicts, but also at the same time, they change the basic characteristics of armed conflicts, with particular emphasis on asymmetry and nonlinearity which are new characteristics of contemporary armed conflicts [6]. This is the consequence of the growing imbalance between conflicting adversaries in components that determine the outcome of the conflict (political, economic, military, diplomatic component). The genesis unsymmetrical armed conflicts constitute an appropriate impulse for inferior side in the conflict to find a new strategy of caring out armed conflict. As a consequence of that, the last two decades, marking asymmetric armed conflicts, where the relatively small forces with fundamental planning have achieved effects of strategic proportions. Asymmetry, as a characteristic of modern armed conflicts, is characterized by the precise political, economic, diplomatic, technological and military imbalance between the conflicting adversaries [3].

The main content of the armed conflict is armed warfare. It represents the highest form of manifestation of armed destruction conflicting adversaries [1]. The armed warfare qualitatively and quantitatively represents the set of all other forms of its manifestation

(individual combat actions and reactions and other activities, combats and battles). According to the Doctrine of Operations, armed warfare as the main content of the armed conflict is a social phenomenon and reversible processes in which conflicting adversaries plan, prepare and perform operations. According to the criterion of importance of aim that is achieved, the basic levels - forms of armed warfare are classified in: battle, combat, individual combat actions and reactions and other activities.

The battle is the highest level of armed warfare. In battle there is a conflict the main forces of conflicting adversaries. The battle decisively influences the period of armed conflict - war or its outcome. Armed conflict - war can be started and finished with one battle, but usually armed conflicts consist of more than one battle. In essence, from the point of scientific and professional knowledge, as well as in the context of history, all armed conflicts carried out during development of civilization of human society are recognized through their concrete forms of manifestation. Namely, for example, the first of all, what the First World War on the territory of the Kingdom of Serbia makes it recognizable, are specific forms of manifestation of armed warfare, such as the Battle of Cer, Battle of Drina or Kolubara. Also whether the Second World War was remembered on this kind that there was no famous battles such as Battle of Staljingrad, Battle of Kursk, etc.

The combat consists of several individual combat actions and reactions and activities. It decisively influences on the outcome of armed conflict on tactical level [5]. In the combats the tactical units or tactical joint structures are usually engaged. Combat is the next level of manifestation of the armed warfare. It also represents a specific form of armed warfare and can be carried out between the conflicting adversaries individually or as a part of battle [5].

Combat action and reaction and activities are basic levels of warfare. In those levels of warfare there is a massive conflict of smaller conflicting adversaries in carrying out assigned missions and tasks [1]. These levels of warfare represent the smallest form of manifestation of armed warfare and can be carried out between the conflicting adversaries individually or as a part of combat or battle.

Taking into consideration aforementioned, armed warfare and its forms of manifestation are reversible processes and for their performing are required at least two conflicting adversaries, which in these forms, prepare and conduct operations [5]. In fact, as armed warfare and the forms of its manifestation are reversible process, and operations that are performed by the forces, are one-way process. Namely, each side in the armed conflict performs its operation determined by events in a concrete form of armed warfare, as well as the operation performed by the other side (no specific form of armed warfare without at least two operations) [5]. Historically, military theorists have, from the time when Mosor (Polish theorist) began to use this term in military terminology, tried to define the operation. On the one hand the Eastern school, led by the military theoreticians of the former Soviet Union, who considered the operation as a reversible process, and on the other hand considering the operation as a military term, pragmatically oriented Western theorists proceeded from the standpoint that it is a one-way process (well - known Boffres Classification development operations through the historical period [ 12 ]).

Influenced by Eastern theoretics, during the expansion of the development of military theory in the former Socialist Federal Republic of Yugoslavia, the operation is considered as the highest form of combat actions, which essentially represents reversibly process. For that period, the appropriate definition of operation is that it is the highest and most complex

form of organization and performing of armed warfare which according to unique plan in a particular space in a particular period of time, unify and direct the combats, tactical and other combat and non-combat actions and other activities of the armed forces and other defence forces aimed at achieving strategic and operational objectives. This definition puts the operation in the same logical level with the combats and warfare as well as, i.e. in the level of reversibly processes. After the dissolution of the former Socialist Federal Republic of Yugoslavia and the restructuring of the whole System of Defence, including the Army, there were also changes in the way of understanding the operation of the military theory. According to the Doctrine of Operations, the operation is notionally defined as a set of combat and/or non-combat activities, movements and other actions to be taken by a unique concept aimed at achieving the overall objective of different characters. They are carried out independently and in coordination with other defence and allied forces.

In essence, the operation is complex, planned and prepared process in which the available resources in a particular space and in a particular period of time in accordance with unique plan achieve the objectives of different characters. Acceptable is the definition of operation as a one-way process in which one side in the conflict is prepared and performed combat and non-combat activities, actions and movements according to an unique plan (operational plan, operational orders) in a particular operational environment aimed at achieving the set objective and final desired effects [5]. The aforementioned definitions indicate that the operation is a one-way process that is not in the same logical level with the forms of armed warfare, i.e. only by mutual activity - the interaction of at least two forces engaged in at least two operations can be achieved by a specific form of armed warfare, notionally defined as a battle, combat, or combat actions and reactions and other activities, depending on the character of the operations of the conflicting adversaries. The main determinant which influences the performance of the operation is the operational environment. According to the Doctrine of Operations operational environment is defined as a set of conditions in which forces are engaged in operation in accordance with commander's decision, and which have the influence on outcome of operation. It is acceptable and the notional definition of the operational environment as a set of components that directly determine the conditions of preparation and performing of operation [2]. According to the criterion of one-way character of the process, realized by one of the conflicting adversaries, levels of operations are determined on: campaigns, main and support operations.

The campaign brings together more operations aimed at achieving military-strategic objectives and final desired effects. Within the campaign, according to importance, one operation is planned, prepared and performed as the main operations of the campaign, and other operations are ancillary (support operations). The definition of the campaign is as follows: The campaign is a set of all combat and non-combat activities, movements and other actions that one side in the conflict performs according to the unique concept aimed at achieving objective and final desired effects during the (armed) conflict (political, economic, military, confessional objective) .

The main operation in the campaign, it is always supported by support operations. The main operation is planned, prepared and carried out aimed at achieving objective of the campaign. On the military strategic level, the result of planning determines the main operation within the campaign. It is acceptable definition of main operation as the highest and most complex one-way process in a campaign that represents the set of all combat and (or) non-combat activities,

movements and actions that one of the side of the conflict performs according to the unique concept aimed at achieving the strategic objective during the (armed) conflict.

Support operations are carried out in support of achieving the main objective of the operation or of the main operation in campaign, as well as to create conditions for the transition from one operation to another. They are performed before the combat or non-combat operation, during or after this operation. It is acceptable and theoretical definition of support operations as one-way process, prepared and performed before or during or after main operation which represents a set of combat and (or) non-combat activities, movements and other actions to be taken by one side in the conflict according to the unique concept aimed at achieving certain the tasks arising from the target basic operations.

Taking into consideration aforementioned it can be concluded that the operation is a one-way process, and that the armed warfare and its levels are reversible processes. There is no armed conflict, i.e. armed warfare as its main content, without at least two combat campaigns of conflicting adversaries, as there is no battle, combat, combat action or reaction and other activities, without at least two of the main or support operations of conflicting adversaries.

In figure 2 it is shown the relationship between the operations and the levels of armed warfare in armed conflict. The operations, which are prepared and performed by the conflicting adversaries represent dialectical unity and opposite which results in achieving a new quality in the armed conflict, and the specific form of armed warfare.

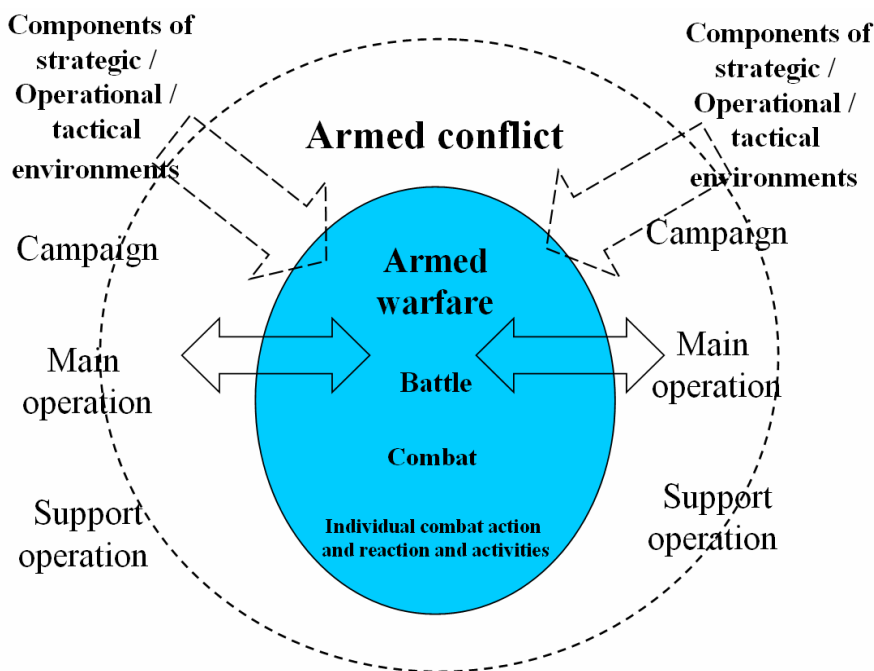


Figure 2 – Relationship between operations and concrete forms of armed warfare



## Notional determination of Military Strategy, Operational Science and Tactics in relation to the Subject and the Object of science

In accordance with the definition of the Sakan object classification of indigenous science of defence on armed warfare and its concrete form - forms of manifestation in the armed conflict, it is acceptable that the object of military strategy is armed warfare as a whole, the object of operational science is a battle (i.e. the highest concrete form and a reversibly process of performing armed warfare), and the object of tactics are combat and combat actions and reactions and other activities as the smallest levels of armed warfare.

In these particular forms of armed warfare a multitude of activities through a series of combat and non-combat actions in combat and non-combat operations (as a one-way process) are carried out by Army and other defence forces. Combat actions and reactions as fundamental, unique specificity of actions of Army Forces, manifest themselves through combat operations in all its contents.

Bearing in mind aforementioned classification of the object of indigenous science of defence can be logically valid and executed according to the one-way process in which the military activity is implemented.

According to this criterion, the object of military strategy would be the campaign, operational science the main operation within campaign and the support operations of operational importance, and the object of tactics would be the main and support operations of tactical importance.

Taking into consideration aforementioned it leads to a new correlation between constituents of science. Namely, it is introduced the term subject of science. In science, in general the meaning of subject of science considers entire reality, or a set of phenomena, and in the social science - a set of social events. Also, the subject itself can be expressed as a part of continent, or a separate entity consisted of special parts [8]. In accordance with this perception of subject, the object is manifested as a part of the subject which can be reaserched.

Historically, at the beginning the subject of science of defence was war, than armed warfare or military forces. For example, S. Ilić believes that the subject of science of defence is the war as a whole, M. Vučinić - war, armed warfare, armed forces, and according to G. Fox it is a set of material and social phenomenon of armed warfare [13].

According to the criteria of the organizational structure it is acceptable that the subject of indigenous science of defence (military science) should be military activity in the narrow or entire defence activity. Based on this criterion, the subject of military science is entire military activity, operational science Army activities of operational units, and the object of tactics are activities of units of tactical level of organization (activities units and joint forces to the brigade level of organization). In accordance with the aforementioned, notional definition of science of defence would be the following: Science of defence is a set of systematic methodological verified information on military activities.

Therefore, according to this criterion, (military) strategy is a set of systematic methodological verified knowledge of entire military activity. Operational science represents a set of systematic methodological verified information on military activities of the operational units, and tactics is a science that represents a set of systematic methodological verified information

on military activities at the tactical level of organization. Classification of indigenous science of defence according to the object - subject of science is presented in figure 3.

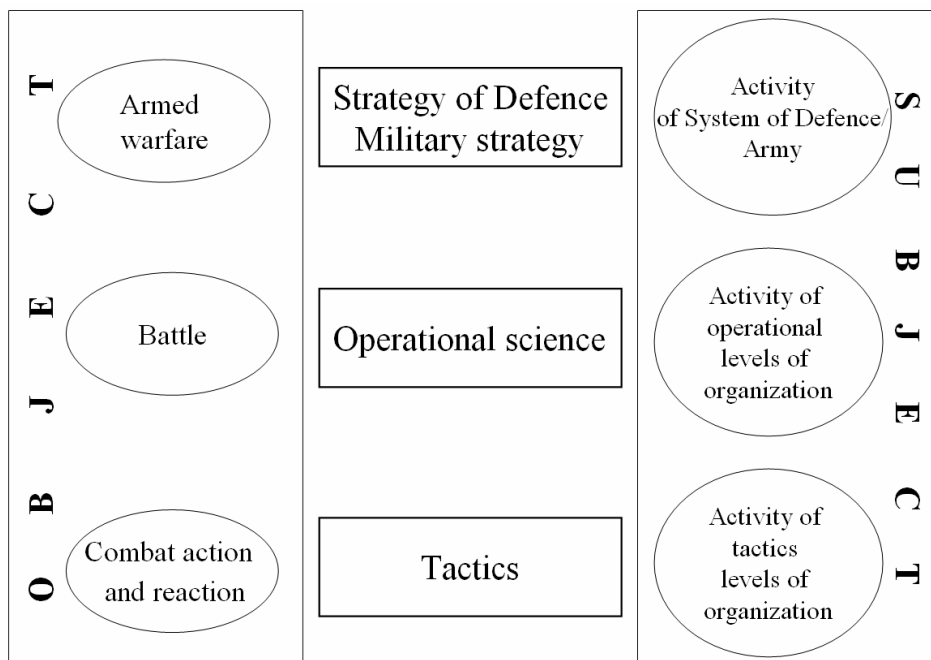


Figure 3 – Classification of indigenous science of defence according to the object - subject of science

Taking into consideration that the subject of science are armed combat action and reaction and other activities, combat and battle, indigenous science of defence would define as follows:

- Military strategy could be defined as a set of systematic and methodologically verified information of entire activities of the Army in the armed warfare.
- Operational science could be defined as a set of systematic and methodologically verified knowledge of activities of the Army in the battle, which represents the highest level of armed warfare.
- Tactics is a indigenous science of defence which represents a set of systematic and methodologically verified knowledge of activities of thr Army in the combat action and reaction, as the basic levels of armed warfare.

However, those definitions do not include completely engagement of the Army Forces in the joint operations of operational level of organization consisted of components of branches and services units of tactical levels of organization (a squadron, division or battalion), and in accordance with aforementioned they do not include complete object of tactics.

## *Conclusion*

Definition and classification of the science of defence is a problem that is as old as the theoretical systematized knowledge of armed conflict. Taking into consideration that the area of objective reality called an armed conflict exists as a social phenomenon determined by the development of civilization, it is necessary to define armed conflict on an appropriate scientific level. The exponential development of science and technology and continuous divergence of science at all classification areas influences the need for precise determined theoretical definition of the science of defence. Only this approach will provide a better understanding of the armed conflict and specific forms of its manifestation from the scientific point of view.

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# DETERMINATION OF DEFENCE CAPABILITY REQUIREMENTS

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A capability-based planning approach provides defence system with adequate response in facing uncertainty, economic constraints and risks. Determination of required defence capabilities is the most important and complex phase in capability-based planning process. The result of this phase is the list of required capabilities of the defence system.

The paper presents method of determination of defence capability requirements and describes practical tools for the identification and the description of required defence capabilities. The capability requirements are identified by perceiving relationships among operational objectives, effects tasks. The capability requirement description contains standards and conditions that clarify necessary capability.

Key words: *defence, planning, capability*

## Introduction

The modern security environment is very complex, unpredictable and dynamic. In order to provide necessary security to society defence systems ought to possess appropriate capabilities and forces that would enable adequate response to security challenges and threats.

In most countries defence capabilities development is facing resource constraints that limit the achievement of required capabilities. Because of that, through of the process of defence planning it is necessary to establish the balance between needs and opportunities.

There are many defence planning approaches. Each of them has advantages and disadvantages and defence planners try to find the appropriate combination that would enable the achievement of planning goals and objectives.

Capability based planning is the modern planning approach that allows dealing with uncertainty in security environment and resource constraints. However, capability based planning requires structured procedures and specific tools that would enable perceiving all necessary elements and factors within complexity of the process.

The full understanding of the relationships among different entities is necessity for appropriate capability based planning. The linkages among operational objectives, effects and tasks have specific importance.

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Determination of required defence capabilities is one of the most complex stages in capability based planning. The application of the sophisticated tools enables the identification of relations among different entities and the determination of required capabilities and their elements. The results of this phase have a direct influence on the outcome of the planning process.

## The overview of capability-based planning

Defence planning is a specific planning discipline which purpose is to ensure that a nation has the necessary capabilities and forces to protect national security, interests and values. That is a complex interdisciplinary process that involves many activities which are mutually dependent.

Defence planning is the key phase of defence management process that ought to provide conditions for effective accomplishment of defence missions and tasks, appropriate development of defence capabilities and efficient usage of defence resources. The main outputs from defence planning process are defence goals and objectives as well as ways for achieving them. Defence planning includes the development of a complete set of plans and sub-plans which are necessary for coordination and integration of different activities.

Defence planning usually involves various branches. In the case of the Republic of Serbia defence planning involves preparation of strategic-doctrinal documents, defence development planning and force usage planning. A similar approach is applied in many other countries but there are different examples as well.<sup>1</sup>

Defence development planning is very important part of defence planning.<sup>2</sup> That is a process of setting the defence development objectives and identifying ways and means to accomplish them. Results of this process are defence development planning documents.<sup>3</sup>

There are many different approaches in defence development planning that are shaped for usage in the defence field or taken from non-government sector. The most often approaches are: top-down planning, resource-constrained planning, technological optimism, risk avoidance, incremental planning, historical extension, capability-based planning, scenario-based planning and threat-based planning [1].

Each method has own advantages and disadvantages. In practice, it is unusual to apply just one approach of defence development planning. In the real world, it is common for defence development planning to combine several of these approaches.

Capability based planning is dominant approach in defence development planning for last two decades. This approach is designed by the RAND Corporation at the beginning

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<sup>1</sup> Defence planning is very often related to defence capabilities development and does not deal with force usage issues.

<sup>2</sup> Defence development is the sum of qualitative and quantitative changes that the result is more effective and more efficient defence system.

<sup>3</sup> The basic defence development planning documents in the Republic of Serbia are: Long-term Defence Development Plan of the Republic of Serbia, Strategic Defence Review of the Republic of Serbia and Mid-term Defence Development Plan and Program.

of XXI century in order to enable appropriate response in facing uncertainty, economic constraints and risks [2]. The practical application of this approach began in the United States, and later on the approach was accepted by Canada, the UK, Australia, New Zealand and the growing number of NATO member states. The generic model of capability-based planning process is shown on Figure 1.

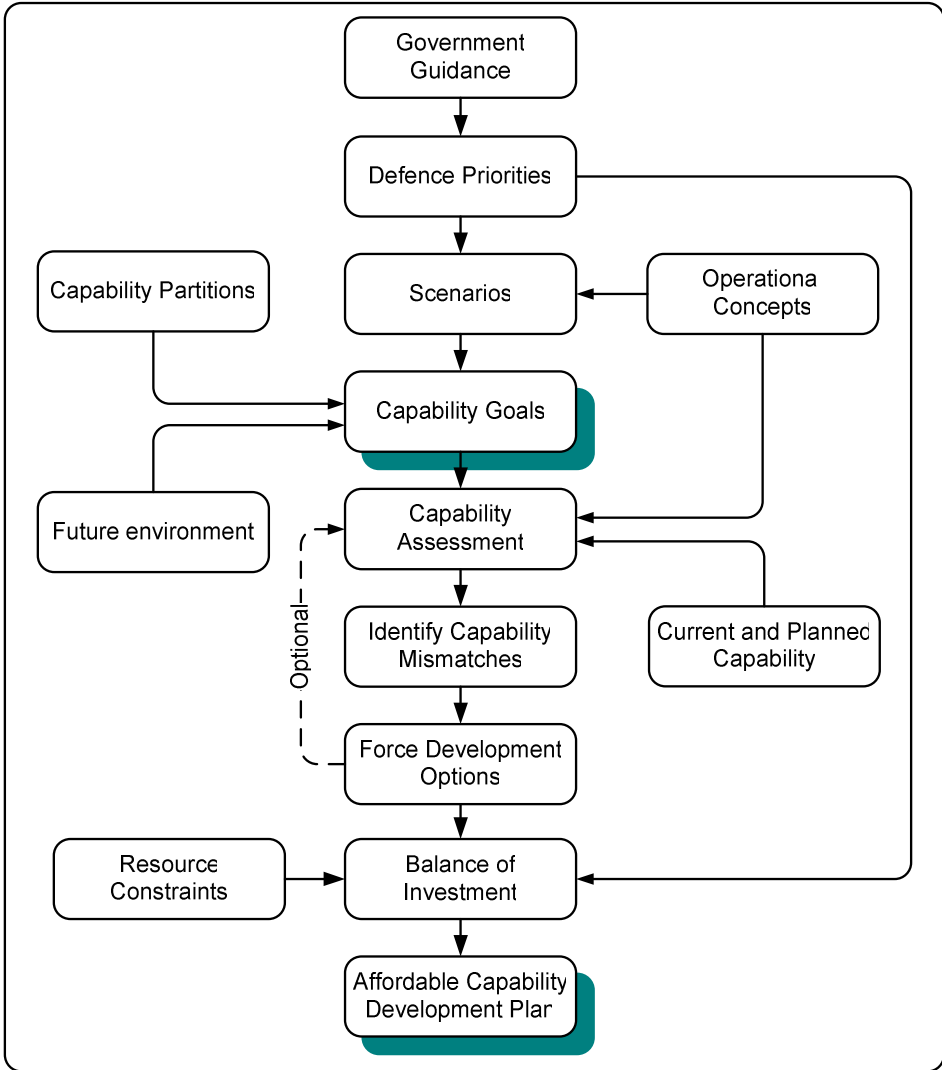


Figure 1 – Generic Process Chart of Capability-Based Planning [3]

The generic model of capability based planning served as a base for designing many other models. Those models are mainly the result of modifications of generic model and attempt to adjust the generic model for implementation in certain circumstances.

One of the comprehensive models of capability based planning applied in defence development planning process in the Republic of Serbia is shown on Figure 2 [4]. The major stages of presented planning model will be briefly described in the following text.

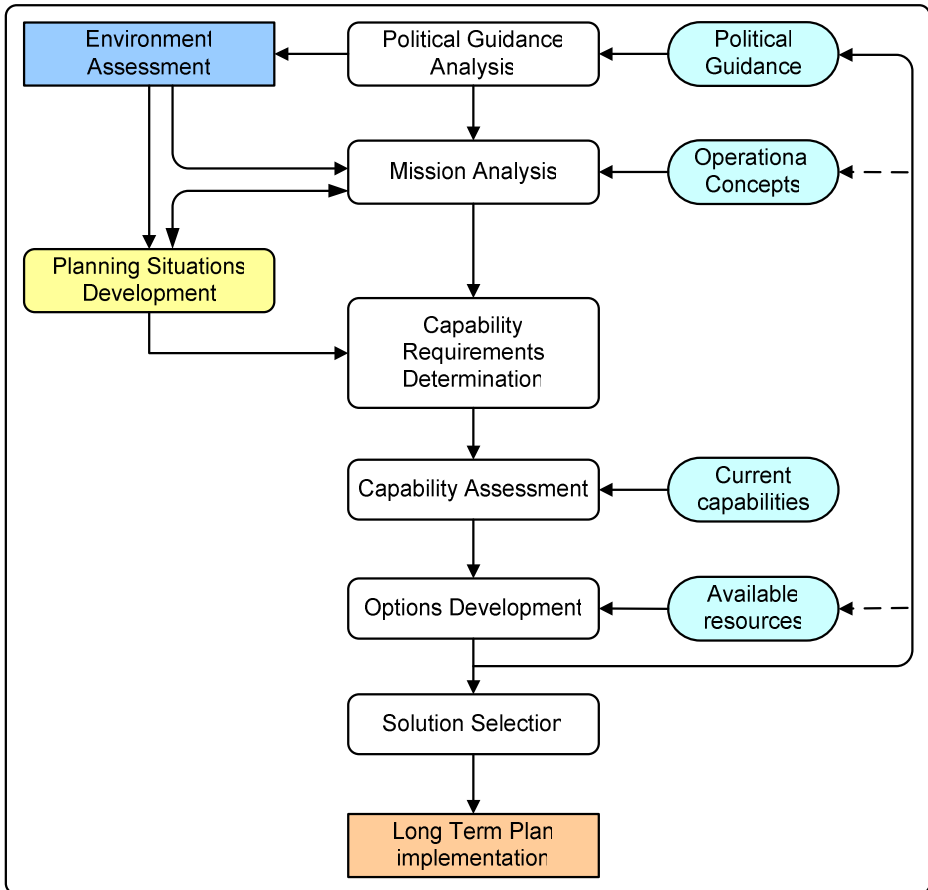


Figure 2 – Model of capability based development planning process [4]

The first stage is Political Guidance Analysis. Political Guidance Analysis clarifies defence policy, level of ambition, limitations and some others issues which lead to defence mission and tasks identification as well as defence priorities determination. Major inputs in this stage are: national interests and objectives, role and the importance of allies, friendly nations and international organizations etc.

The Environment Assessment is the second stage in the development planning process. This stage includes gathering and analysing necessary information, identification of security challenges and threats as well as designing a proper number of strategic situations.

The third stage is Mission Analysis. The function of this stage is to identify what should be done in order to achieve determined operational goals and objectives considering defence missions and operational concepts as inputs. The final output from this stage is multi-level task structure.

Scenario development is the fourth stage of the capability based planning process. In this stage a suitable number of scenarios are designed for each of the previously defined strategic situations.<sup>4</sup> The developed scenarios should be related to all types of military operations that are determined in the third stage.

Probably the hardest part of the capability-based planning process is Capability Requirements Determination stage. The aim of this stage is to identify defence capabilities that are required to achieve desired operational goals and objectives. Determination of capability requirements should take into consideration standards and conditions for operational tasks accomplishment.

Capability Assessment is sixth stage in the process. The purpose of this stage is to assess the capability gap between current and required capabilities.

Seventh stage in capability based planning process is Options Development. Options should provide ways for bridging previously identified capability gap. The options should be based on resource constraints and take into consideration both material and non-material approaches.

Solution Selection is the last stage of capability-based planning process. The result of this stage is the option which provides the best balance between capability requirements and resource affordability. The specific output of the stage is risk specifications which are related to uncovered capability requirements.

## Relationships among different entities in capability based planning

Analysis of many definitions pointed out that capability is the ability and capacity to perform the tasks and achieve the desired effects under specific standards and conditions in order to accomplish the defined objectives [5]. Proper understanding of the relationship among different entities is necessity for full and appropriate implementation of the capability based planning. The reason for that is encompassed in the definition of the term capability.

The definition indicates specific interdependence among objectives, effects, tasks and capabilities. Objectives represent desired results that are accomplished by achieving the suitable effects while effects are achieved through performing specific tasks. Defence

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<sup>4</sup> There are two main types of scenarios: developmental and situational [5]. The developmental scenario takes the current situation as a starting point, determining how the situation will occur in the future. Situational scenario describes a specific situation within a certain period of time (hours, days or months of operation).



capabilities enable execution of tasks and achievement of effects in order to fulfil established objectives. The relationships among objectives, effects, tasks and capabilities are shown on Figure 3.

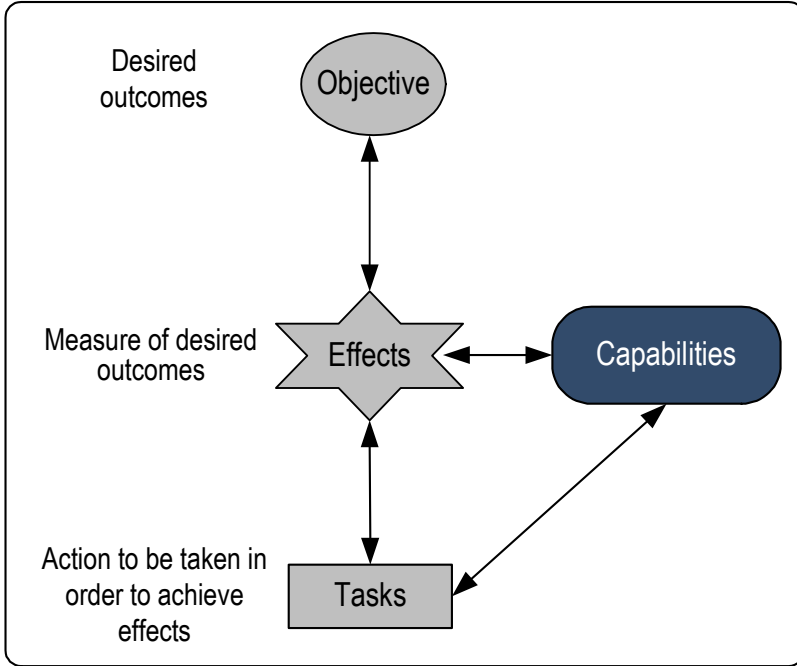


Figure 3 – Relationships among objectives, effects, tasks and capabilities

In order to fully understand interdependencies among objectives, effects, tasks and capabilities it is useful to perceive relationships among them from operational perspective as well. In this sense, the starting points are general and specific operational objectives. General objectives are related to a desired operational end state and achieved by accomplishing specific objectives.

Operational effects have a dual character and can be observed from planning and execution perspective.<sup>5</sup> In the planning process, required effects come out from objectives, and lead to tasks that are necessary to be executed. The execution of required tasks produces the desired effects that may also generate other effects. Desired effects that are directly produced by task execution are direct or first order effects. Other effects which are result of existence of direct effects are considered as indirect and can be marked as second, third etc. order effects. Dual nature of the effects is shown on Figure 4. [6]

<sup>5</sup> An effect is the physical condition and/or behaviour of the system that has arisen as a result of combat and non-combat operations and depends on a certain situation.

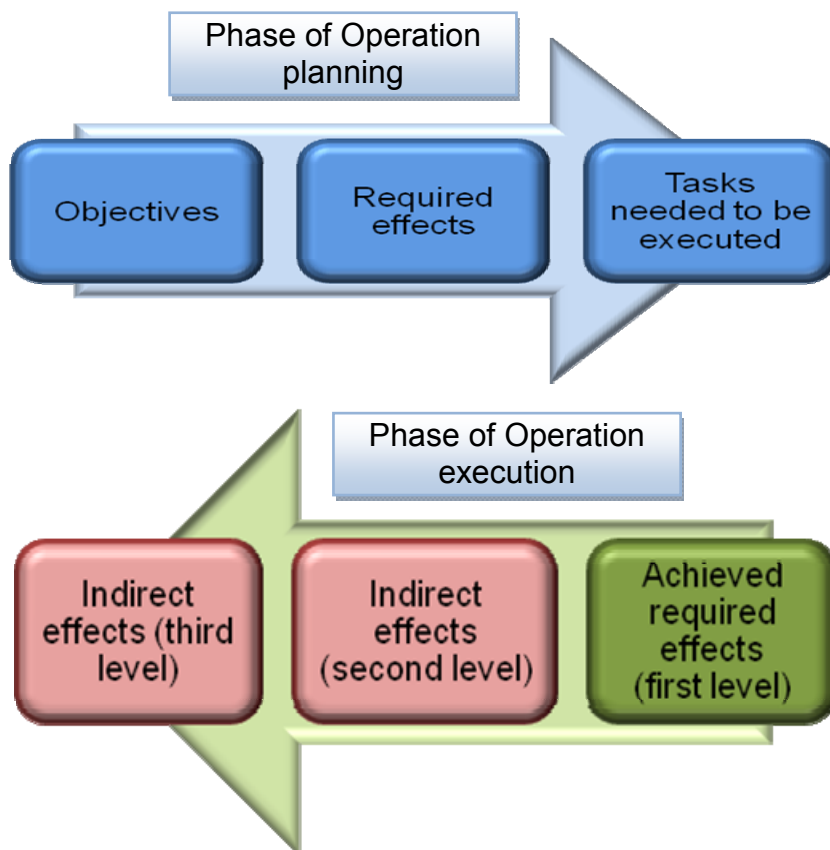


Figure 4 – Dual nature of effect (adopted from [6])

According to Paul Davis, there are physical and behavioural effects. Physical effects may include: equipment or systems damaging, processes disrupting and people killing. On the other hand, behavioural effects are related to demoralization and thereby reduction the fighting capabilities of military forces (or population), confusion of commanders, influencing decision making etc. [7].

Effects are considered in two categories: decisive and auxiliary. Decisive effects are achieved by actions on critical enemy capabilities in order to meet operational and strategic objectives, and auxiliary effects create the conditions to achieve decisive effects.

Planned operational effects can have different nature and characters which depend on specific operational needs (prevent, destroy, restrict and so on). For planning purpose, it is very useful to describe each specific effect and establish precise standards which should be met in order to achieve desired effects. Sample descriptions of operational effects and standards for achieving the effects are given in Table 1.

Table 1 – The example of an effect description [8]

Effect	Description	Standard	
		Measure	Criterion
Neutralize	Rendering enemy personnel or materiel incapable of interfering in particular operations	%	$x$ % enemy personal and/or weapons and military equipment are incapable of interfering in a particular operation
		hours/days	Enemy personal and/or weapons and military equipment are incapable of interfering in a particular operation for $y$ days.
Defeat	Enemy forces has temporarily or permanently lose the physical means or will to fight	%	Causing the opponents up to $z$ % of losses in the personnel and/or weapons and military equipment
		%	Causing the opponent up to $q$ % of personnel lose will to fight
Destroy	Physically render an enemy force combat-ineffective until it is reconstituted.	%	Causing the opponents up to $w$ % of losses in the personnel and/or weapons and military equipment

The description of operational effects and standards for their achievement is supposed to help defence planners with identifying the tasks which should be executed. Identified operational tasks imply capabilities which are necessary for desired effects production and operational objectives achievement.

## Method of determination of defence capability requirements

One of the most complex stages in capability based planning process is determination of required defence capabilities. The results of this stage directly affect the outcome of the whole planning process. In that regard, the determination of required defence capabilities must be approached systematically and thoroughly in order to eliminate any possible mistakes.

The basic mistake that is often made in this process is to perceive operational capabilities as forces, resources or structures. Accordingly, defence planners have to keep in mind that the capability represents the ability and capacity to perform the tasks and achieve the desired effects. They must avoid thinking about forces and structures when they deal with capability based planning.

Keeping in mind the definition of capability, the first step in the required defence capabilities determination stage is related to objectives, tasks and effects analysis. Objectives, effects and tasks are analyzed at the strategic, operational and tactical level and for each specific planning scenario. Tasks at a higher level in principle are transformed into objectives at a lower level (Figure 5). Operational objectives can be achieved by reaching one or more effects by execute multiple tasks.<sup>6</sup>

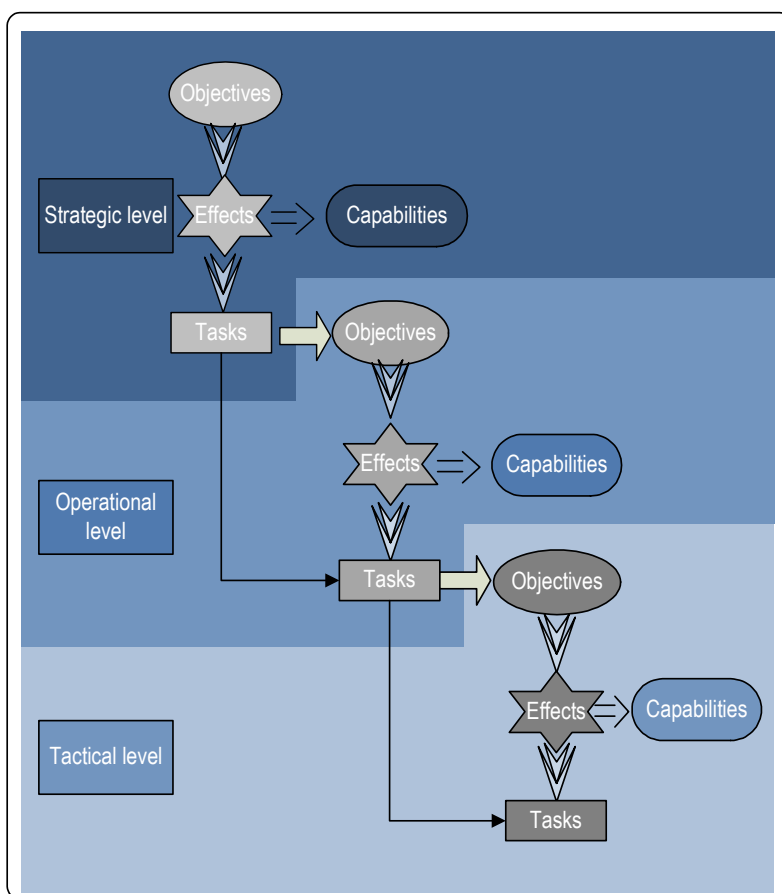


Figure 5 – The objectives, effects and tasks analysis

<sup>6</sup> The results from task decomposition process can be used for updating the universal task lists of defence forces.

The appropriate tool for recording of the results of objectives, effects and tasks analysis is a specific pattern that is named *Scenario Task List* (Table 2). Tasks ought to be generally grouped into the so-called combat (operational) functions: command, manoeuvre, intelligence (information), fire-action, force protection and sustainability of forces.

Table 2 – *Scenario Task List*

Objective	Effect	Task	Is it in Universal Task List (YES/NO)
Strategic objective SO-1	Strategic effect SE-1	<b>Command and Control</b>	
		Task C-1	
		Task C-2...	
		<b>Manoeuvre</b>	
		Task M-1	
		Task M-2...	
		<b>Intelligence (information)</b>	
		Task I-1	
		Task I-2 ...	
		<b>Fire- action</b>	
		Task F-1	
		Task F-2 ...	
		<b>Force protection</b>	
		Task P-1	
		Task P-1...	
		<b>Sustainability of forces</b>	
	Task S-1		
	Task S-2 ...		
	Strategic effect SE-2	...	
	... Strategic effect SE-n	...	

The next part of determination of required defence capabilities is focused to identifying necessary capabilities. This stage of the process involves linking effects and decomposed tasks with defence capabilities required for their execution. Required capability comes from effects that must be achieved, while operational capability elements are correlated with tasks needed to be performed (Figure 6). Tasks, which are previously grouped according to combat (operational) functions, are transformed into operational capability elements.<sup>7</sup> The final result of the process is a list of required defence capabilities by levels (strategic, operational and tactical).

<sup>7</sup> Each capability consists of capability elements. Some elements produce direct effect while some are preconditions for effect production. The compound of capability elements represents the certain capability.

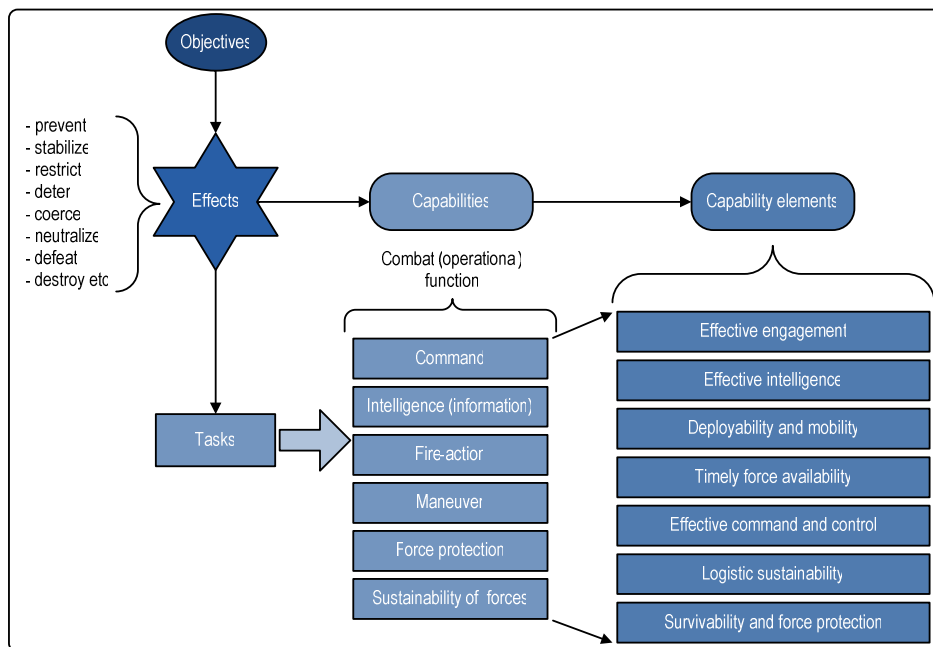


Figure 6 – Identification of required capability

Each of the identified capability should be described. The description should contain general characteristics of specific capability, elements that it contains, as well as specific standards and conditions. A suitable tool for capability description is so-called Capability profile (Table 3).

Table 3 – Capability profile

<b>CAPABILITY NAME:</b>	<i>Preventing enemy to take control over strategic objects</i>	
<b>CAPABILITY CODE:</b>	<b>E001</b>	
<b>CAPABILITY DESCRIPTION:</b>	<i>Prevent enemy to take control over strategic object S1, through strategic direction SD1 in all weather conditions during 20 days.</i>	
<b>Capability element</b>	<b>Standards</b>	
	<b>Measure</b>	<b>Criteria</b>
<b>Effective engagement</b>	%	destroy 30% of enemy tanks
	%	destroy 20% of enemy soldier
	...	...
<b>Effective intelligence</b>	...	...
<b>Deployability and mobility</b>	km	200 km movement in 7 hours
	...	...

Capability element	Standards	
	Measure	Criteria
<i>Timely force availability</i>	...	...
<i>Effective command and control</i>	...	...
<i>Logistic sustainability</i>	days	food preparation autonomy for 20 days
	days	munitions supply autonomy for 10 days
	...	...
<i>Survivability and force protection</i>	level of protection	Solder protection level 3
	level of protection	Armoured platform protection level 5
	...	...

The description of capability requirements, which are elaborated through capability elements and specific standards and conditions, establishes the foundation for measures and actions within capability inputs that should be performed in order to develop the required capability.<sup>8</sup>

The determination of capability requirements is the input into the next stage of capability based planning which is aimed to identification of the current and future capability gaps. In order to overcome gaps many options should be developed and the selected option ought to be described within the affordable capability development plan.

## Conclusion

The capability based planning is a modern defence planning approach that enables identification of necessary capabilities in accordance with defence policy and security challenges and threats. Identified capability requirements are a base for the planning of defence system development but it is necessary to establish the balance between defence needs and state and society opportunities.

The determination of capability requirements is one of the most complex stages in the process of capability-based planning. The sense of this stage is to identify capabilities needed to perform tasks and achieve desired operational effects, under specific standards and conditions.

There is a directed link among required capabilities, tasks, operational effects and objectives. Capabilities enable performing of tasks and achievement of operational effects in order to accomplish operational objectives.

In order to identify capability requirements it is fundamental to analyse operational objectives, effects and tasks, in accordance with chosen planning scenarios. The analysis allows comprehensive understanding of interdependencies among objectives, effects,

<sup>8</sup> Capability inputs are: doctrine, organization, training, material, personnel, leadership, facilities and interoperability.

tasks. The desired operational effects are related to capabilities and decomposed tasks are linked with capability elements.

The determination of capability requirements demands the application of specific tools and instruments. Scenario Task List and Capability profile are simple but practically proven tools that can be very helpful in the planning process. The knowledge and the experience of planners are implied.

The presented method is primarily intended for using in the defence sector, but it can be applied in many similar organizations (police, security agencies etc.). In that case, the method should be slightly adjusted.

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# MARITAL STATUS OF CITIZENS AND FLOODS: CITIZEN PREPAREDNESS FOR RESPONSE TO NATURAL DISASTERS

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This paper presents the results of quantitative research into the influence of marital status on citizen preparedness for response to natural disaster caused by flood in the Republic of Serbia. The aim of such research is a scientific explanation of relationship between marital status and preparedness. In order to realize research, nineteen communities were randomly selected in which 2,500 persons were surveyed, in 2015. On that occasion, households were questioned using the multi-stage random sample. The research results suggest that married would in the highest percentage give money to help flood victims, long-lasting rains make them to think about preparedness for floods, they know what flood is, they are familiar with viruses and infections that accompany the period during and after the flood, they know where in local community elders, disabled and infants live, they know safety procedures for responding during floods, they would evacuate to a friend's place. On the other side, divorced citizens in the lowest percentage take preventive measures to reduce tangible consequences caused by floods, they are not yet prepared, but will start preparing next month, they know what flood is, they would evacuate to the upper floors of the house, say that someone at primary/secondary school and within family educated them on floods, they know what to do after an official warning about approach of flood, they got information about floods at faculty, through informal education and through media. The research results can be used in designing strategies and campaigns aimed to raise the level of preparedness of citizens with regard to their marital status.

Key words: *security, natural disaster, flood, citizens, marital status, preparedness, Serbia*

## Introduction

Analyses of geospatial and temporal distributions of natural disasters indicate an increase in the number and severity of flood consequences (Cvetković, 2014; Cvetković & Dragicević, 2014; Cvetković, Gačić, & Jakovljević, 2015a, 2015b; Cvetković,

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Milojković, & Stojković, 2014; Devlin, Waterhouse, Taylor, & Brodie, 2001; Dragičević et al., 2013; Guan, Zheng, Zhang, & Qin, 2015; Martinez & Le Toan, 2007; Türkeş & Sümer, 2004). In domestic and foreign scientific literature, there are various definitions of flood. Flood as a natural disaster is usually defined as the occurrence of unusually large amount of water at a certain place due to the effects of natural forces or artificial causes (dams failure, war, etc.) (Stojanović, 1984: 95); the phenomenon of high water spills from riverbed where high water is the highest reached level of water in the river during a flood (Dragičević & Filipović, 2009: 193); type of natural disaster that occurs due to spills of high water from natural and artificial recipients, i.e. riverbed and water reservoirs (Milojković & Mlađan, 2010: 173); result of the overflow of water out of natural and artificial boundaries, that is, when water flow exceeds the capacity of natural and artificial boundaries, that is, when water flow exceeds the capacity of the natural retention or infiltration (Đarmati & Aleksić, 2004: 117); in water management and hydrotechnical practice the term flood (high water) means the status of water regime when the water level, that is, the river flow increases causing discharge of water from the riverbed and flooding coastal terrain (Prohaska, Ilić, Miloradović, & Petković, 2009, p. 191); result of spillover beyond the river embankments and spreading across nearby valley (Marlene & Carmichael, 2007:45); result of raising of water level above natural or artificial dams (embankments) which by its expansion endangers lives and property of people (Smith & Petley, 2009, p. 239); flood as a natural disaster can involve raising of water level above the boundaries of its coasts accompanied by uncontrolled expansion of water in accordance with characteristics of terrain, causing consequences to people, the environment and their property (Cvetković, 2015: 63).

In the theory of disasters, great attention is paid to research into preparedness of citizens for response to various natural disasters (Momani & Salmi, 2012; Ronan, Alisic, Towers, Johnson, & Johnston, 2015; Tomio, Sato, Matsuda, Koga, & Mizumura, 2014; Uscher-Pines, Chandra, & Acosta, 2013; Cvetković, 2015a, 2015b, 2015c, 2016b; Cvetković, Gačić, & Jakovljević, 2015). Gillespie et al. (Gillespie, Colignon, Banerjee, Murty, & Rogge, 1993: 36) define preparedness as measures undertaken before the disaster in order to improve response and recovery from the resulting consequences. Thus, the authors integrate measures of planning, procedural training and procurement of inventories. International Organization of the Red Cross considers preparedness as any measures taken aimed at anticipation and possible prevention, mitigation of consequences of disaster on vulnerable populations and efficient response that is dealing with resulting consequences (Societies, 2000, p. 6). Tierney et al (Tierney, Lindell, & Perry, 2002, p. 27) suggest that preparedness involves activities undertaken to strengthen capabilities and opportunities of social groups to respond to situations caused by disasters. Thereby, they emphasize the inconsistency of preparedness with a clear focus on its two objectives: 1. to help people to avoid the threat (Cvetković, 2016a; Cvetković & Gačić, 2016; Štrbac & Terzić, 2007); 2. to develop capacities and mechanisms with the aim of an effective response to disasters. Authors also focused on examination of correlation between marital status and preparedness to respond (Russell, Goltz, & Bourque, 1995; Spittal, McClure, Siebert, & Walkey, 2008). Tomio et al suggest that older, female and better educated individuals are positively associated with a higher level of disaster preparedness at the household level, while at the community level such correlation exists with length of residence, marital status, presence of an older family member (Tomio et al., 2014).

For these reasons, the paper that represents the quantitative research examines the influence of marital status on preparedness of citizens to respond to a natural disaster caused by floods in the Republic of Serbia. The research results can be used for the adoption of strategy to improve preparedness of citizens for response.

## Methodology and data

### *Study area*

For realization of the study some communities were selected with high and low risk of onset of lowland and flash flooding. The survey was conducted on the territory of a large number of local communities with different demographic and social characteristics to be generalized to the whole population in Serbia. The urban and rural communities in different parts of Serbia were selected. Specifically, the study was conducted in the following communities: Obrenovac, Šabac, Kruševac, Kragujevac, Sremska Mitrovica, Priboj, Batočina, Svilajnac, Lapovo, Paraćin, Smederevska Palanka, Jaša Tomić, Loznica, Bajina Bašta, Smederevo, Novi Sad, Kraljevo, Rekovac and Užice.

### *Study design with variables*

Operationalization of the theoretical notion of preparedness to respond has given three dimensions that have been studied by identification of larger number of variables for each one. Perception of preparedness includes variables on preparedness at different levels; barriers for raising the level of preparedness; variables on the expectation on help from different categories of people and organizations; assessment of effectiveness of first responders to respond. Knowledge through variables related to the level of knowledge was examined; flood risk map; knowing where they are and how to use them, willingness to train, willingness for methods of education, way to obtain the information about floods. And the third dimensions, supplies relate to having oral/written plans, having supplies of food and water, a transistor radio, flashlight, hoe, shovel, hoe and spade, first aid kit, insurance.

### *Sample*

The population consists of all adult residents of local communities in which there is a risk to occur flash flood or flood caused by dam failure. The sample size has been adjusted with the geographical (local communities from all regions of Serbia will be represented) and demographic size of the communities themselves. It was randomly selected sample of 19 out of 150 municipalities and 23 towns and the city of Belgrade (Table 1). The research was undertaken in those areas that were most affected related to the amount of water or potential risk. In the survey, questioning strategy was applied to households with the use of a multi-stage random sample. In the first step, which refers to the primary causal units, parts of community in the research were selected. This process was accompanied by creation of map and determination of percentage share of each such segment in the total sample. In the second stage, streets or sections of streets were determined on the level of primary causal units. Each

research core was determined as the path with specified start and end points of movement. In the next step, households in which the survey would be conducted were defined. The number of households is harmonized with population count of community. The final step referred to selection of respondents within households previously defined. The selection of respondents was conducted following the procedure of next birthday for adult members of household. The process of interviewing for each local authority was held three days in a week (including weekends) at different times of days. The study surveyed with 2.500 persons.

Table 1 – *The number of the respondents in local communities in the study*

Local community	Total square area	Localities	Population	Number of households	Number of respondents	Percentages (%)
Obrenovac	410	29	72682	7752	178	7.12
Šabac	797	52	114548	19585	140	5.60
Kruševac	854	101	131368	19342	180	7.20
Kregujevac	835	5	179417	49969	191	7.64
Sremska Mitrovica	762	26	78776	14213	174	6.96
Priboj	553	33	26386	6199	122	4.88
Batočina	136	11	11525	1678	80	3.20
Svilajnac	336	22	22940	3141	115	4.60
Lapovo	55	2	7650	2300	39	1.56
Paraćin	542	35	53327	8565	147	5.88
Smederevska Palanka	421	18	49185	8700	205	8.20
Sečanj – Jaša Tomić	82	1	2373	1111	97	3.88
Loznica	612	54	78136	6666	149	5.96
Bajina Bašta	673	36	7432	3014	50	2.00
Smederevo	484	28	107048	20948	145	5.80
Novi Sad	699	16	346163	72513	150	6.00
Kraljevo	1530	92	123724	19360	141	5.64
Rekovac	336	32	10525	710	50	2.00
Užice	667	41	76886	17836	147	5.88
<b>Total: 19</b>	10784	634	1500091	283602	2500	100

According to Statistical Office of Serbia, women have a share of 51.3% and men 48.7% in overall population. Observed in absolute numbers, of total 7,498,001 inhabitants, in Serbia live 3,852,071 women and 3,645,930 men. Similar as in the entire population, the sample has more women (50.2%) than men (49.8%). In 2014, the average age of respondents was 39.95 (men 40.9 and women 38.61). Observing the educational structure of citizens who are included in the survey sample, it also can be noted that majority of population (41.3%) has secondary/four years school. The smallest percentage of

population has completed master (2.9%) and doctoral studies (0.4%). Marital status can be viewed from the aspect of legal marital status and factual marital status which also includes persons living in extramarital community. In the sample, married people account to 54.6%, widow/widower 3%, unmarried (single) 18.8%, engaged 2.7% and in relationship 16.9%. Table 2 gives a detailed overview of sample structure of surveyed citizens.

Table 2 – Sample structure of interviewed citizens

Variables	Categories	Frequency	Percentages (%)
Gender	Male	1244	49.8
	Female	1256	50.2
Age	18-28	711	28.4
	28-38	554	22.2
	38-48	521	20.8
	48-58	492	19.7
	58-68	169	6.8
	Over 68	53	2.2
Education	Primary	180	7.2
	Secondary/3 years	520	20.8
	Secondary/4 years	1032	41.3
	Higher	245	9.8
	High	439	17.6
	Master	73	2.9
Marital status	Doctorate	11	0.4
	Single	470	18.8
	In relationship	423	16.9
	Engaged	67	2.7
	Married	1366	54.6
	Divorced	99	4.0
Distance between household and river (km)	Widow / widower	75	3.0
	Up to 2 km	1479	59.2
	From 2 to 5	744	29.8
	From 5 to 10	231	9.2
Number of household members	Over 10	46	1.8
	Up to 2	63	2.5
	From 2 to 4	1223	48.9
	From 4 to 6	639	25.6
Employment status	Over 6	575	23.0
	Yes	1519	60.8
Size of apartment / house (m <sup>2</sup> )	No	883	35.3
	Up to 35	128	3.9
	35-60	237	7.2
	60-80	279	8.5
	80-100	126	3.9
Income level - monthly	Over 100	45	1.4
	Up to 25,000 RSD	727	29.1
	Up to 50,000 RSD	935	37.4
	U to 75,000 RSD	475	19.0
	Over 90,000 RSD	191	7.6

\* 1 US Dollar = 111 RSD

## *Instrument*

For validity and reliability studies of the data gathering instrument five steps were taken. In the first step, we determined some scales used for measuring the preparedness of citizens to respond to disasters in general or to specific natural disaster. The third step included the aforementioned operationalization of preparedness for response and deciding on the three basic dimensions (perception of preparedness to respond, knowledge and supplies). In the fourth step, we defined variables for each dimension (perceptions of preparedness to respond – 46 variables; knowledge – 50 and supplies – 18), then for each variable it was taken, adapted or specially designed question in instrument. The fifth and final step was carried out preliminary (pilot) study in Batočina with the aim of checking constructed instrument (its internal compliance of the scale, i.e. degree of relatedness of items of which it is composed, and whether instructions, questions and values on scale are clear).

## *Data analysis*

Statistical analysis of collected data was performed by IBM's software package SPSS. Chi-square test of independence ( $\chi^2$ ) was used for testing of the connection between marital status and categorical variables on perception, knowledge and having supplies and plans for a natural disaster caused by flood. On that occasion additional assumptions were completed about minimum expected frequency in each cell, which amounted to five or more. Assessment of impact level was performed by phi coefficient representing the correlation coefficient ranging from 0 to 1, where a higher number indicates a stronger relationship between the two variables. Koen criteria were used: from 0.10 for small, 0.30 for medium and 0.50 for large effect (Cohen, 1988). For tables larger than 2 by 2, to assess the impact level it was used Cramer's v coefficient which takes into account the number of degrees of freedom. Accordingly, for R-1 or K-1 is equal to 1, we used the following criteria of impact size: small = 0.01, medium = 0.30 and large = 0.50. To test the connection between marital status and continuous dependent variables on the perception, knowledge and having supplies and plans for natural disasters caused by floods, it was selected independent samples t-test and ANOVA. Before proceeding to the implementation of the test, we examined general and specific assumptions for its implementation.

## *Research results*

The results of Chi-square test of independence ( $\chi^2$ ) showed a statistically significant relationship between marital status and the following variables: preventive measures ( $p = 0.000 < 0.05$ ,  $v = 0.09$  - small influence); financial resources ( $p = 0.002 < 0.05$ ,  $v = 0.08$  - small influence); engaged in the field ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - small influence); engaged in a detention center ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - small influence); long-lasting rains ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - small influence); media reports ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - small influence); and level of preparedness ( $p = 0.000 < 0.05$ ,  $v = 0.07$  - small influence). On the other hand, there was no statistically significant relationship with variables: visiting to the flooded areas ( $p = 0.061 > 0.05$ ), and raising of water level ( $p = 0.170 > 0.05$ ) (Table 1).

According to the results, in the highest percentage:

- Citizens who live alone would engage to help threatened population in the field (23.2%), would engage in detention centers to provide help to flood victims (9.3%);
- Citizens who are in relationships think about preparedness for floods because of visiting to the flooded areas (13.8%);
- Citizens who are engaged take preventive measures to reduce tangible consequences of floods (22.7%), they are still not prepared, but will start preparing next month (16.7%), have recently begun to prepare (9.1%), have prepared for at least 6 months (32.4%);
- Citizens who are married would give money to help flood victims (32.9%), long-lasting rains make them to think on preparedness (43.9%);
- Citizens who are divorced are not yet prepared, but intend to get prepared in the next 6 months (23.2%);
- Citizens who have lost their husband/wife think on preparedness for response to floods due to media reports (55.6%), do not do anything to prepare themselves (69%);

On the other hand, in the smallest percentage:

- Citizens who are in relationships would engage in detention centers to provide help to flood victims (2.3%);
- Citizens who are engaged think about preparedness for floods due to visiting to the flooded areas (6.1%), media reports (21.2%), do not do anything to prepare themselves (47%);
- Citizens who are divorced take preventive measures to reduce tangible consequences of floods (6.4%) they are still not prepared, but will start preparing next month (2.4%), have recently begun to prepare (1.2%);
- Citizens who have lost their spouses would give money to help flood victims (10.6%) have performed preparation for at least 6 months (2.8%);
- Citizens who have lost their spouses would engage to help threatened population in the ground (0.1%), think on preparedness for floods due to long-lasting rains (25.8%) they are still not prepared, but intend to get prepared in the next 6 months (9.7%).

Table 3 – Results of the chi-square test of independence ( $\chi^2$ ) between marital status and mentioned variables on the perception of preparedness for response

	value	df	Asymp. Sig. (2 - sided)	Cramers v
<b>Preventive measures</b>	<b>39,143</b>	<b>10</b>	<b>,000*</b>	<b>,093</b>
<b>Money</b>	<b>18,709</b>	<b>5</b>	<b>,002*</b>	<b>,089</b>
<b>Field deployed</b>	<b>37,901</b>	<b>5</b>	<b>,000*</b>	<b>,127</b>
<b>Detention center deployed</b>	<b>37,680</b>	<b>5</b>	<b>,000*</b>	<b>,126</b>
Visiting to the flooded areas	11,507	5	,061	,051
<b>Long-lasting rain periods</b>	<b>26,992</b>	<b>5</b>	<b>,000*</b>	<b>,108</b>
Raising of river levels	7,753	5	,170	,057
Media reports	27,814	5	,000*	,110
<b>Level of preparedness</b>	<b>57,548</b>	<b>25</b>	<b>,000*</b>	<b>,071</b>

\*statistically significant correlation -  $p \leq 0.05$

One-way ANOVA was used for studying the effect of marital status of citizens on the following continuous dependent variables. Subjects were divided according to marital status into 6 groups (single, in a relationship, engaged, married, divorced and widower/widow). Using homogeneity of variance test it was examined equality of variances in the results for each of

the 6 groups. Bearing in mind the results of Levene Statistic, the assumption of homogeneity of variance is not violated in the following variables: importance of taken measures; first responders; I am not threatened; I have no time for that; I have no support; I can not prevented it; international humanitarian organizations; the police; self-organized individuals; awareness; citizens in flooded areas; efficiency of the emergency service; efficiency of staff for emergency situations. For variable in which the assumption is violated, there is a table „Robust Tests of Equality of Means” and the results of two tests, Welsh's (Welsh) and Brown's (Brown - Forsythe) tests, resistant to the violation of the assumption of homogeneity of variance.

According to the results, there is a statistically significant difference between the means of those groups in the following continuous dependent variables: individual preparedness ( $F = 6.19$ ,  $p = .000$ , eta squared = 0.018 - small influence); household preparedness ( $F = 4.00$ ,  $p = 0.002$ , eta squared = 0.009); preparedness of local community ( $F = 2.49$ ,  $p = .002$ , eta squared = 0.005 - small influence); personal abilities ( $F = 11.592$ ,  $p = .000$ , eta squared = 0.031 - small influence); It is very expensive ( $F = 2.84$ ,  $p = 0.016$ , eta squared = 0.005 - small influence); It will not influence on safety ( $F = 4.009$ ,  $p = 0.002$ , eta squared = 0.008 - small influence); household members ( $F = 5.48$ ,  $p = 0.000$ , eta squared = 0.018 - small influence); neighbors ( $F = 11.61$ ,  $p = 0.000$ , eta squared = 0.029 - small influence); NHO - ( $F = 6.46$ ,  $p = .000$ , eta squared = 0.013 - small influence); first responders ( $F = 5.22$ ,  $p = .000$ , eta squared = 0.013 - small influence); emergency service ( $F = 2.65$ ,  $p = .023$ , eta squared = 0.006 - small influence); Army ( $F = 5.28$ ,  $p = 0.000$ , eta squared = 0.013 - small influence); interest ( $F = 7.98$ ,  $p = .000$ , eta squared = 0.019 - small influence); Help would not mean much ( $F = 9.024$ ,  $p = .000$ , eta squared = 0.026); Others have helped ( $F = 2.94$ ,  $p = 0.13$ , eta squared = 0.006 - small influence); Job of state authorities ( $F = 11.65$ ,  $p = .000$ , eta squared = 0.019 - small influence); I have no time for that ( $F = 4.602$ ,  $p = .000$ , eta squared = 0.01 - small influence); police efficiency ( $F = 0.278$ ,  $p = 0.001$ , eta squared = 0.005); efficiency of first responders ( $F = 3.83$ ,  $p = 0.02$ , eta squared = 0.008 - small influence); efficiency of the army ( $F = 6.09$ ,  $p = 0.000$ , eta squared = 0.016 - small influence); character before. rate ( $F = 9.95$ ,  $p = 0.000$ , eta squared = 0.019 - a small effect); I am not affected ( $F = 7.73$ ,  $p = 0.000$ , eta squared = 0.015 - small influence); I have no time for that ( $F = 3.23$ ,  $p = .006$ , eta squared = 0.006 - small influence); I have no support ( $F = 4.15$ ,  $p = .001$ , eta squared = 0.008 - small influence); I can not prevent it ( $F = 2.93$ ,  $p = 0.012$ , eta squared = 0.006 - small influence); MHO ( $F = 4.27$ ,  $p = .001$ , eta squared = 0.008 - small influence); Police ( $F = 3.26$ ,  $p = .006$ , eta squared = 0.006 - small influence); self-organized individuals ( $F = 4.06$ ,  $p = 0.001$ , eta squared = 0.008); awareness ( $F = 8.44$ ,  $p = .000$ , eta squared = 0.016 - small influence); Citizens of flooded areas ( $F = 3.14$ ,  $p = .008$ , eta squared = 0.006); efficiency of emergency medical services ( $F = 5.73$ ,  $p = 0.000$ , eta squared = 0.011 - small influence); and efficiency of staff for emergency situations ( $F = 4.52$ ,  $p = .000$ , eta squared = 0.009 - small influence).

Subsequent comparisons using Tukey HSD shows that the observed mean value of:

- Individual preparedness for response to floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 2.33$ ,  $SD = 1.44$ ) and divorced ( $M = 2.71$ ,  $SD = 1.36$ ), engaged ( $M = 2.67$ ,  $SD = 1.036$ ) and singles ( $M = 3.07$ ,  $SD = 0.950$ ). Citizens who live alone have the highest level of individual preparedness for response, while the lowest is recorded among citizens who lost their spouses;



- household preparedness for response to floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 2.63$ ,  $SD = 1.19$ ) and the citizens who live alone ( $M = 3.14$ ,  $SD = 0.97$ ), who are married ( $M = 3.01$ ,  $SD = 0.95$ ), and in a relationship ( $M = 3.10$ ,  $SD = 0.97$ ). Citizens who live alone have the highest level of household preparedness for response, while the lowest is recorded among citizens who lost their spouses;

- preparedness of local community for response to floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 2.56$ ,  $SD = 1.27$ ), and those who are in a relationship ( $M = 2.97$ ,  $SD = 1.02$ ). Citizens who are in a relationship have the highest level of preparedness of local community for response, and the lowest is recorded among citizens who lost their spouses;

- confidence in personal abilities and capabilities to cope with consequences of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.08$ ,  $SD = 1.03$ ), and who have lost their spouses ( $M = 1.99$ ,  $SD = 1.21$ ). Citizens who live alone have the highest level of confidence in personal abilities and capabilities to deal with consequences, while the lowest is recorded among citizens who lost their spouses;

- importance of taking measures of preparedness statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 2.56$ ,  $SD = 1.24$ ), and those who live alone ( $M = 3.32$ ,  $SD = 1.05$ ); reason „I do not consider myself personally or my household at risk“ for not taking preventive measures statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.13$ ,  $SD = 1.45$ ) and citizens who have lost their spouses ( $M = 2.41$ ,  $SD = 1.36$ ). Citizens who live alone have the highest level of agreement with the stated reason in relation to citizens who have lost their spouses;

- reason „I have no time for that“ for not taking preventive measures statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are in a relationship ( $M = 2.87$ ,  $SD = 1.42$ ), and citizens who are divorced ( $M = 2.47$ ,  $SD = 1.11$ ). Citizens who are in a relationship have the highest level of agreement with the stated reason in relation to citizens who are divorced;

- reason „I think it will not influence on my personal or household safety“ for not taking preventive measures statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are in a relationship ( $M = 2.97$ ,  $SD = 1.29$ ) and citizens who are divorced ( $M = 2.39$ ,  $SD = 1.39$ ). Citizens who are in a relationship have the highest level of agreement with the stated reason in relation to citizens who are divorced;

- reason „I have no support from the local community“ for not taking preventive measures statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are married ( $M = 2.67$ ,  $SD = 1.7$ ) and citizens who have lost their spouses ( $M = 3.27$ ,  $SD = 1.42$ ). Citizens who have lost their spouses have the highest level of agreement with the stated reason in relation to citizens who are married;

- reason „I can not prevent the consequences in any way“ for not taking preventive measures statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 3.25$ ,  $SD = 1.52$ ), and citizens who are divorced ( $M = 2.53$ ,  $SD = 1.40$ ). Citizens who have lost their spouse have the highest level of agreement with the stated reason in relation to citizens who are divorced;

- reliance on family members in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 4.37$ ,  $SD = 1.21$ ) and citizens who are divorced ( $M = 3.46$ ,  $SD = 1.64$ ). Citizens who have lost their spouses have the highest level of reliance on family members in relation to citizens who are divorced who have the lowest level;

- reliance on neighbors in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.74$ ,  $SD = 1.23$ ) and citizens who are divorced ( $M = 2.61$ ,  $SD = 1.43$ ). Citizens who live alone have the highest level of reliance on neighbors in relation to divorced citizens who have the lowest level;

- reliance on non-governmental humanitarian organizations in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 4.37$ ,  $SD = 1.21$ ) and citizens who are divorced ( $M = 3.46$ ,  $SD = 1.64$ ). Citizens who have lost their spouses have the highest level of reliance on non-governmental humanitarian organization in relation to divorced citizens who have the lowest level;

- reliance on international humanitarian organizations in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ) and mutually differs for citizens who are in a relationship ( $M = 2.51$ ,  $SD = 1.19$ ) and citizens who are divorced ( $M = 1.98$ ,  $SD = 1.06$ ). Citizens who are in a relationship have the highest level of reliance on international humanitarian organization in relation to divorced citizens divorced who have the lowest level;

- reliance on the police in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.42$ ,  $SD = 1.29$ ) and citizens who are divorced ( $M = 2.99$ ,  $SD = 1.37$ ). Citizens who live alone have the highest level of reliance on the police in such situations compared to divorced citizens who have the lowest level;

- reliance on first responders in the first 72 hours after the occurrence of floods statistically significant ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.76$ ,  $SD = 1.19$ ) and citizens who are divorced ( $M = 3.01$ ,  $SD = 1.42$ ). Citizens who live alone have the highest level of reliance on first responders in these situations compared to divorced citizens who have the lowest level;

- reliance on the army in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.67$ ,  $SD = 1.25$ ) and citizens who are divorced ( $M = 2.91$ ,  $SD = 1.53$ ). Citizens who live alone have the highest level of reliance on the army in these situations compared to divorced citizens who have the lowest level;

- reliance on self-organized individuals in the first 72 hours after the occurrence of floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.20$ ,  $SD = 1.32$ ) and citizens who have lost their spouses ( $M = 2.60$ ,  $SD = 1.37$ ). Citizens who live alone have the highest level of reliance on self-organized individuals in such situations compared to citizens who have lost their spouses who have the lowest level;

- awareness of potential flood risks in local community statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are in a relationship ( $M = 2.88$ ,  $SD = 1.95$ ) and citizens who have lost their spouses ( $M = 1.95$ ,  $SD = 1.13$ ). For citizens who are in a relationship have the highest level of awareness in relation to citizens who have lost their spouses and who have the lowest level;

- reason „My help would not mean much” for not engaging in the field to help other people statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 2.55$ ,  $SD = 1.12$ ) and who are divorced ( $M = 2.37$ ,  $SD = 1.27$ ). Citizens who live alone have the highest level of agreement with the stated reasons compared to divorced citizens who have lowest level;

- reasons „Others have helped enough” for not engaging in the field to help other people statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are married ( $M = 2.78$ ,  $SD = 1.22$ ) and who are divorced ( $M = 2.29$ ,  $SD = 1.23$ ). Citizens who are married have the highest level of agreement with the stated reason compared to divorced citizens who have the lowest level;

- reason „it is a job of competent state authorities” for not engaging in the field to help other people statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 3.84$ ,  $SD = 1.04$ ) and who are divorced ( $M = 2.60$ ,  $SD = 1.46$ ). Citizens who have lost their spouses have the highest level of agreement with the stated reason compared to divorced citizens who have the lowest level;

- reason „I expected primarily be engaged citizens from flood-affected areas” for not engaging in the field to help other people statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 3.24$ ,  $SD = 1.23$ ), and citizens who live alone ( $M = 2.68$ ,  $SD = 1.22$ ). Citizens who have lost their spouses have the highest level of agreement with the stated reason compared to divorced citizens who have the lowest level;

- reason „I did not have enough time” for not engaging in the field to help other people statistically significant ( $p < 0.05$ ), and mutually differs among citizens who have lost their spouses ( $M = 3.26$ ,  $SD = 1.52$ ) and who are divorced ( $M = 2.25$ ,  $SD = 1.21$ ). Citizens who have lost their spouses have the highest level of agreement with the stated reason compared to divorced citizens who have the lowest level;

- assessment of efficiency of the police response to natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are married ( $M = 3.32$ ,  $SD = 1.27$ ) and divorced people ( $M = 2.84$ ,  $SD = 1.29$ ). Citizens who are married have the highest level of efficiency evaluation of police response in relation to divorced citizens who have the lowest level;

- assessment of efficiency of response of first responders in natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are engaged ( $M = 3.78$ ,  $SD = 1.21$ ) and divorced people ( $M = 3.08$ ,  $SD = 1.39$ ). Citizens who are engaged recorded the highest level of efficiency evaluation of response of first responders in relation to divorced citizens who recorded the lowest level;

- assessment of efficiency of emergency response medical assistance in natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are engaged ( $M = 3.82$ ,  $SD = 1.21$ ) and divorced people ( $M = 3.06$ ,  $SD = 1.36$ ). Citizens who are engaged recorded the highest level of efficiency evaluation of response of emergency service in relation to divorced citizens who recorded the lowest level;

- assessment of efficiency of military response to natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are engaged ( $M = 3.80$ ,  $SD = 1.43$ ) and divorced people ( $M = 2.96$ ,  $SD = 1.58$ ). Citizens who are engaged recorded the highest level of efficiency evaluation of military response in relation to divorced citizens who recorded the lowest level;

- assessment of efficiency of staff for emergency situations to natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are engaged ( $M = 3.49$ ,  $SD = 1.48$ ) and divorced people ( $M = 2.49$ ,  $SD = 1.39$ ). Citizens who are engaged recorded the highest level of efficiency evaluation of response of staff for emergency situations in relation to divorced citizens who recorded the lowest level.

Table 4 – Results of one-way ANOVA of different marital status groups and continuous dependent variables on the perception of preparedness for response

Homogeneity of variance test				
	Levene Statistic	df1	df2	Sig.
Individual preparedness	14,006	5	2465	,000
Household preparedness	6,634	5	2473	,000
Preparedness of loc. community	7,206	5	2458	,000
State preparedness	5,260	5	2463	,000
Personal abilities	7,357	5	2450	,000
<b>Importance of taken measures</b>	<b>1,581</b>	<b>5</b>	<b>2459</b>	<b>,162*</b>
<b>ISS</b>	<b>2,062</b>	<b>5</b>	<b>2426</b>	<b>,067*</b>
<b>I am not threatened</b>	<b>,606</b>	<b>5</b>	<b>2441</b>	<b>,695*</b>
<b>I have no time for that</b>	<b>1,916</b>	<b>5</b>	<b>2418</b>	<b>,088*</b>
It is very expensive	3,458	5	2408	,004
It will not influence on safety	2,341	5	2413	,039
I am not capable	4,393	5	2407	,001
<b>I have no support</b>	<b>,827</b>	<b>5</b>	<b>2419</b>	<b>,530*</b>
<b>I can not prevent it</b>	<b>1,971</b>	<b>5</b>	<b>2404</b>	<b>,080*</b>
Household members	8,709	5	2431	,000
Neighbors	4,417	5	2432	,001
Non-governmental humanitarian organizations	3,145	5	2416	,008
<b>International humanitarian organizations</b>	<b>1,715</b>	<b>5</b>	<b>2415</b>	<b>,128*</b>
Religious community	4,302	5	2413	,001
<b>Police</b>	<b>,441</b>	<b>5</b>	<b>2429</b>	<b>,820*</b>
First responders	7,183	5	2432	,000
Emergency service	3,219	5	2431	,007
Army	5,065	5	2433	,000
<b>Self-organized individuals</b>	<b>1,948</b>	<b>5</b>	<b>2431</b>	<b>,083*</b>
<b>Awareness</b>	<b>1,659</b>	<b>5</b>	<b>2466</b>	<b>,141*</b>
Interest	3,920	5	2454	,002
Help would not mean much	4,654	5	2317	,000
Others have helped	4,627	5	2316	,000
Job of state authorities	3,989	5	2311	,001
<b>Citizens in flooded areas</b>	<b>,993</b>	<b>5</b>	<b>2293</b>	<b>,421*</b>
Lack of time	3,594	5	2303	,003
It is too costly	4,458	5	2301	,000
Efficiency of the police	2,615	5	2408	,023
Efficiency of first responders	2,428	5	2409	,033
<b>Efficiency of emergency service</b>	<b>1,421</b>	<b>5</b>	<b>2408</b>	<b>,213*</b>
Efficiency of the army	9,586	5	2395	,000
<b>Efficiency of stuff for emergency situations</b>	<b>1,501</b>	<b>5</b>	<b>2405</b>	<b>,186*</b>

\* Presumption of homogeneity of variance is not violated – Sig. &gt; 0,05

Marital Status of Citizens and Floods: Citizen Preparedness for Response to Natural Disasters

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Individual preparedness	Different group	51,474	5	10,295	9,461	,000
	Within a group	2682,117	2465	1,088		
	Total	2733,591	2470			
Household preparedness	Different group	23,730	5	4,746	4,961	,000
	Within a group	2365,815	2473	,957		
	Total	2389,546	2478			
Preparedness of loc. community	Different group	16,983	5	3,397	2,763	,017
	Within a group	3021,867	2458	1,229		
	Total	3038,851	2463			
State preparedness	Different group	10,034	5	2,007	1,501	,186
	Within a group	3293,036	2463	1,337		
	Total	3303,070	2468			
Personal abilities	Different group	84,333	5	16,867	16,146	,000
	Within a group	2559,348	2450	1,045		
	Total	2643,681	2455			
Importance of taken measures	Different group	<b>63,239</b>	<b>5</b>	<b>12,648</b>	<b>9,957</b>	<b>,000*</b>
	Within a group	<b>3123,634</b>	<b>2459</b>	<b>1,270</b>		
	Total	<b>3186,872</b>	<b>2464</b>			
First responders	Different group	14,332	5	2,866	1,624	,150
	Within a group	4281,666	2426	1,765		
	Total	4295,998	2431			
I am not threatened	Different group	80,339	5	16,068	7,730	,000*
	Within a group	5073,752	2441	2,079		
	Total	5154,092	2446			
I have no time for that	Different group	29,007	5	5,801	3,235	,006*
	Within a group	4336,339	2418	1,793		
	Total	4365,346	2423			
It is very expensive	Different group	23,798	5	4,760	2,737	,018
	Within a group	4187,559	2408	1,739		
	Total	4211,357	2413			
It will not influence on safety	Different group	36,425	5	7,285	4,275	,001
	Within a group	4112,058	2413	1,704		
	Total	4148,483	2418			
I am not capable	Different group	7,937	5	1,587	,904	,478
	Within a group	4228,471	2407	1,757		
	Total	4236,408	2412			
I have no support	Different group	35,517	5	7,103	4,155	,001*
	Within a group	4136,029	2419	1,710		
	Total	4171,546	2424			
I can not prevent it	Different group	26,990	5	5,398	2,933	,012*
	Within a group	4424,527	2404	1,840		
	Total	4451,517	2409			
Household members	Different group	68,956	5	13,791	9,211	,000
	Within a group	3639,755	2431	1,497		
	Total	3708,711	2436			

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Neighbors	Different group	111,087	5	22,217	14,572	,000
	Within a group	3707,954	2432	1,525		
	Total	3819,041	2437			
Non-governmental humanitarian organizations	Different group	44,783	5	8,957	6,573	,000
	Within a group	3291,989	2416	1,363		
	Total	3336,772	2421			
International humanitarian organizations	<b>Different group</b>	<b>28,029</b>	<b>5</b>	<b>5,606</b>	<b>4,271</b>	<b>,001*</b>
	<b>Within a group</b>	<b>3169,501</b>	<b>2415</b>	<b>1,312</b>		
	<b>Total</b>	<b>3197,530</b>	<b>2420</b>			
Religious community	Different group	8,255	5	1,651	1,093	,362
	Within a group	3644,023	2413	1,510		
	Total	3652,278	2418			
Police	<b>Different group</b>	<b>28,208</b>	<b>5</b>	<b>5,642</b>	<b>3,264</b>	<b>,006*</b>
	<b>Within a group</b>	<b>4198,016</b>	<b>2429</b>	<b>1,728</b>		
	<b>Total</b>	<b>4226,224</b>	<b>2434</b>			
First responders	Different group	51,466	5	10,293	6,854	,000
	Within a group	3652,339	2432	1,502		
	Total	3703,805	2437			
Emergency medical service	Different group	25,099	5	5,020	3,268	,006
	Within a group	3734,482	2431	1,536		
	Total	3759,581	2436			
Army	Different group	59,291	5	11,858	6,673	,000
	Within a group	4323,541	2433	1,777		
	Total	4382,832	2438			
Self-organized individuals	<b>Different group</b>	<b>36,343</b>	<b>5</b>	<b>7,269</b>	<b>4,062</b>	<b>,001*</b>
	<b>Within a group</b>	<b>4350,010</b>	<b>2431</b>	<b>1,789</b>		
	<b>Total</b>	<b>4386,354</b>	<b>2436</b>			
Awareness	<b>Different group</b>	<b>65,445</b>	<b>5</b>	<b>13,089</b>	<b>8,444</b>	<b>,000*</b>
	<b>Within a group</b>	<b>3822,432</b>	<b>2466</b>	<b>1,550</b>		
	<b>Total</b>	<b>3887,877</b>	<b>2471</b>			
Interest	Different group	65,729	5	13,146	9,690	,000
	Within a group	3329,319	2454	1,357		
	Total	3395,048	2459			
Help would not mean much	Different group	96,328	5	19,266	12,619	,000
	Within a group	3537,388	2317	1,527		
	Total	3633,716	2322			
Others have helped	Different group	22,647	5	4,529	3,048	,010
	Within a group	3441,200	2316	1,486		
	Total	3463,847	2321			
Job of state authorities	Different group	70,674	5	14,135	9,294	,000
	Within a group	3514,815	2311	1,521		
	Total	3585,489	2316			
Citizens in flooded areas	<b>Different group</b>	<b>23,582</b>	<b>5</b>	<b>4,716</b>	<b>3,145</b>	<b>,008*</b>
	<b>Within a group</b>	<b>3438,832</b>	<b>2293</b>	<b>1,500</b>		
	<b>Total</b>	<b>3462,414</b>	<b>2298</b>			

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Lack of time	Different group	46,125	5	9,225	5,545	,000
	Within a group	3831,327	2303	1,664		
	Total	3877,453	2308			
It is too costly	Different group	4,725	5	,945	,657	,656
	Within a group	3309,249	2301	1,438		
	Total	3313,974	2306			
Efficiency of the police	Different group	23,488	5	4,698	2,872	,014
	Within a group	3938,703	2408	1,636		
	Total	3962,191	2413			
Efficiency of first responders	Different group	34,173	5	6,835	4,121	,001
	Within a group	3995,576	2409	1,659		
	Total	4029,749	2414			
<b>Efficiency of emergency service</b>	<b>Different group</b>	<b>42,705</b>	<b>5</b>	<b>8,541</b>	<b>5,734</b>	<b>,000*</b>
	<b>Within a group</b>	<b>3586,769</b>	<b>2408</b>	<b>1,490</b>		
	<b>Total</b>	<b>3629,473</b>	<b>2413</b>			
Efficiency of the army	Different group	71,787	5	14,357	8,197	,000
	Within a group	4195,029	2395	1,752		
	Total	4266,816	2400			
<b>Efficiency of stuff for emergency situations</b>	<b>Different group</b>	<b>42,016</b>	<b>5</b>	<b>8,403</b>	<b>4,526</b>	<b>,000*</b>
	<b>Within a group</b>	<b>4464,936</b>	<b>2405</b>	<b>1,857</b>		
	<b>Total</b>	<b>4506,952</b>	<b>2410</b>			

\* There is a statistically significant difference between the means of dependent variables in 6 groups - Sig. ≤ 0.05

Robust Tests of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
Individual preparedness	Welch	6,194	5	283,466	,000*
	Brown - Forsythe	7,358	5	442,488	,000*
Household preparedness	Welch	4,001	5	290,962	,002*
	Brown - Forsythe	4,363	5	537,780	,001*
Preparedness of local community	Welch	2,496	5	286,825	,031*
	Brown - Forsythe	2,486	5	539,198	,031*
State preparedness	Welch	1,290	5	288,458	,268
	Brown - Forsythe	1,300	5	510,577	,262
Personal abilities	Welch	11,592	5	289,008	,000*
	Brown - Forsythe	13,460	5	513,730	,000*
It is very expensive	Welch	2,849	5	271,781	,016*
	Brown - Forsythe	2,621	5	497,971	,024*

Robust Tests of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
It will not influence on safety	Welch	4,009	5	273,515	,002*
	Brown - Forsythe	4,210	5	563,688	,001*
I am not capable	Welch	,927	5	272,742	,464
	Brown - Forsythe	,850	5	534,877	,515
Household members	Welch	5,483	5	283,628	,000*
	Brown - Forsythe	8,121	5	535,636	,000*
Neighbors	Welch	11,614	5	293,762	,000*
	Brown - Forsythe	14,645	5	641,758	,000*
Non-governmental humanitarian organizations	Welch	6,465	5	288,496	,000*
	Brown - Forsythe	6,813	5	637,446	,000*
Religious community	Welch	1,031	5	289,112	,400
	Brown - Forsythe	1,080	5	593,876	,370
First responders	Welch	5,224	5	285,146	,000*
	Brown - Forsythe	5,763	5	483,547	,000*
Emergency medical service	Welch	2,654	5	289,080	,023*
	Brown - Forsythe	2,865	5	542,564	,015*
Army	Welch	5,286	5	285,106	,000*
	Brown - Forsythe	5,645	5	484,376	,000*
Interest	Welch	7,980	5	287,224	,000*
	Brown - Forsythe	8,575	5	520,577	,000*
Help would not mean much	Welch	9,024	5	269,832	,000*
	Brown - Forsythe	12,046	5	492,920	,000*
Others have helped	Welch	2,940	5	273,929	,013*
	Brown - Forsythe	2,725	5	474,929	,019*
Job of state authorities	Welch	11,653	5	276,276	,000*
	Brown - Forsythe	8,878	5	523,069	,000*
Lack of time	Welch	4,602	5	266,013	,000*
	Brown - Forsythe	5,157	5	479,765	,000*



Robust Tests of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
It is too costly	Welch	,585	5	267,120	,712
	Brown - Forsythe	,618	5	557,160	,686
Efficiency of the police	Welch	<b>2,783</b>	<b>5</b>	<b>282,747</b>	<b>,018*</b>
	Brown - Forsythe	<b>2,597</b>	<b>5</b>	<b>503,345</b>	<b>,025*</b>
Efficiency of first responders	Welch	<b>3,830</b>	<b>5</b>	<b>280,082</b>	<b>,002*</b>
	Brown - Forsythe	<b>3,810</b>	<b>5</b>	<b>551,698</b>	<b>,002*</b>
Efficiency of the army	Welch	<b>6,092</b>	<b>5</b>	<b>277,856</b>	<b>,000*</b>
	Brown - Forsythe	<b>6,936</b>	<b>5</b>	<b>497,771</b>	<b>,000*</b>

a. Asymptotically F distributed.

\* There is a statistically significant difference between the means of dependent variables in 6 groups - Sig. ≤ 0.05

The results of Chi-square test of independence ( $\chi^2$ ) showed a statistically significant relationship between marital status and the following variables of knowledge on natural disasters caused by floods: knowledge on floods ( $p = 0.000 < 0.05$ ,  $v = 0.08$  - medium influence); familiarity with safety procedures ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); evacuation ( $p = 0.000 < 0.05$ ,  $v = 0.09$  - medium impact); education at school ( $p = 0.000 < 0.05$ ,  $v = 0.08$  - medium influence); education at work ( $p = 0.000 < 0.05$ ,  $v = 0.13$  - medium influence); elders, disabled ( $p = 0.000 < 0.05$ ,  $v = 0.08$  - medium influence); help - elders, disabled ( $p = 0.000 < 0.05$ ,  $v = 0.13$  - medium influence); official warning ( $p = 0.000 < 0.05$ ,  $v = 0.14$  - medium influence); potential infection ( $p = 0.000 < 0.05$ ,  $v = 0.13$  - medium influence); water valve ( $p = 0.000 < 0.05$ ,  $v = 0.16$  - medium influence); gas valve ( $p = 0.000 < 0.05$ ,  $v = 0.14$  - medium influence); electricity switch ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); handling valve for water ( $p = 0.000 < 0.05$ ,  $v = 0.15$  - medium influence); handling valve for gas ( $p = 0.000 < 0.05$ ,  $v = 0.18$  - medium influence); handling electricity switch ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); information from household members ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); information from neighbors ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - medium influence); information from a friend ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); information at school ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); information through informal system ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); information at work ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); information on television ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - medium influence); information over the Internet ( $p = 0.000 < 0.05$ ,  $v = 0.14$  - medium influence); desire for training ( $p = 0.000 < 0.05$ ,  $v = 0.09$  - medium influence); TV ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - medium influence); radio ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); video games ( $p = 0.001 < 0.05$ ,  $v = 0.09$  - medium influence); internet ( $p = 0.000 < 0.05$ ,  $v = 0.15$  - medium influence) (Table 3).

The results indicate that:

- Married citizens: in the highest percentage – know what flood is (83.7%) are familiar with viruses and infections that accompany the period during and after floods (53.6%), know where in local community elders, disabled and infants live (46.3%) know safety procedures for responding during floods (27.6%), would evacuate to a friend's place (36.8%), say that someone at work educated them on floods (39.1 %), know how to handle the valve for water (81.9%), valve for gas (60.5%), electricity switch (78.4%), got information about floods in the press (34.1%); in the smallest percentage – they got information about floods at school (11.9%);

- Divorced citizens in the highest percentage – would evacuate to neighbors (18.1%), they know where electricity switch is (94.3%), gained information about floods from household members (37.6%), want to be educated on the radio (26.1%); in the smallest percentage - know what flood is (68%), would evacuate to the upper floor of the house (31.9%), would evacuate to detention centers (10.6%), say that someone at primary/secondary school (19.4%) and within family (32.3%) educated them about floods, they know what to do after an official warning about the approach of a flood wave (34.7%), gained information about floods at faculty (3.2%), acquired information about floods through an informal system of education (2.2%), the press (22.6%) want to be educated through video-games (0.1%);

- Citizens who have lost their spouses: in the highest percentage - would be evacuated in collective centers (30.9%), they know what helped is required by elders, disabled and infants (60%), they know where water valve is (92%), gas valve (72.9%), gained information about floods from neighbors (33.8%) want to be educated on television (86.5%); in the smallest percentage - know safety procedures for responding during floods (12.3%) are familiar with viruses and infections that accompany the period during and after floods, would evacuate to neighbors' places (1.1%), know where in local community elders, disabled and infants live (30.3%), gained information about floods from friends (4.4%) over the Internet (4.4%), want to undergo some form of training for dealing with natural disasters caused by floods (9%), they want to be educated over the Internet (4.5%);

- Citizens who are engaged in the greatest percentage – would evacuate to the upper floor of the house (40.4%), gained information about floods at faculty (9.7%), an informal system of education (12.9%); in the smallest percentage - acquired information about floods from household members (16.1%) want to be educated on the radio (1.6%);

- Citizens who are not in a relationship: in the highest percentage - point out that someone at primary/secondary school educated them on floods (23%), acquired information about floods from friends (16.7%), they would like to undergo some form of training for dealing with natural disasters caused by floods (44.8%) want to be educated through video-games (3.6%); in the smallest percentage - point out that someone at work educated them about floods (21.4%), they know what to do after an official warning about the approach of a flood wave (19.5%), they know where water valve is (66.4 %);

- Citizens who are in a relationship: in the highest percentage - point out that someone within family educated them about floods (47.9%), gained information about floods at school (20.6%) over the Internet (39.5%), they want to be educated over the Internet (33.2%); in the smallest percentage know what help is required by elders, disabled and infants (40.8%), they know where electricity switch is (69.1%), know how to handle water valve to (62.1%), gas valve (35%), gained information about floods from neighbors (10.9%) want to gain information through television (56%).

Table 5 – Review of the results of Chi-square test of independence ( $\chi^2$ ) of marital status and knowledge as an element of preparedness for response

	value	df	Asymp. Sig. (2 - sided)	Cramer's v
<b>Knowledge on floods</b>	<b>35,270</b>	<b>10</b>	<b>,000*</b>	<b>,086</b>
<b>Familiarity with safety procedures</b>	<b>43,971</b>	<b>10</b>	<b>,000*</b>	<b>,098</b>
<b>Evacuation</b>	<b>63,277</b>	<b>20</b>	<b>,000*</b>	<b>,084</b>
<b>Education at school</b>	<b>34,095</b>	<b>10</b>	<b>,000*</b>	<b>,085</b>
Education within family	24,469	10	,006	,072
<b>Education at work</b>	<b>85,838</b>	<b>10</b>	<b>,000*</b>	<b>,137</b>
<b>Elders, disabled, infants</b>	<b>33,072</b>	<b>10</b>	<b>,000*</b>	<b>,084</b>
Consent for evacuation	3,381	5	,642	,038
<b>Help – elders, disabled</b>	<b>88,520</b>	<b>10</b>	<b>,000*</b>	<b>,135</b>
Neighbors - independently	24,407	10	,007	,072
Flood risk map	24,125	10	,007	,071
<b>Official warning</b>	<b>98,381</b>	<b>10</b>	<b>,000*</b>	<b>,146</b>
<b>Potential infection</b>	<b>87,595</b>	<b>10</b>	<b>,000*</b>	<b>,136</b>
<b>Water valve</b>	<b>130,492</b>	<b>10</b>	<b>,000*</b>	<b>,165</b>
<b>Gas valve</b>	<b>78,524</b>	<b>10</b>	<b>,000*</b>	<b>,143</b>
<b>Electricity switch</b>	<b>70,615</b>	<b>10</b>	<b>,000*</b>	<b>,124</b>
<b>Handling water valve</b>	<b>118,782</b>	<b>10</b>	<b>,000*</b>	<b>,157</b>
<b>Handling gas valve</b>	<b>127,672</b>	<b>10</b>	<b>,000*</b>	<b>,181</b>
<b>Handling electricity switch</b>	<b>71,072</b>	<b>10</b>	<b>,000*</b>	<b>,124</b>
<b>Information from household members</b>	<b>27,947</b>	<b>5</b>	<b>,000*</b>	<b>,109</b>
<b>Information from neighbors</b>	<b>31,574</b>	<b>5</b>	<b>,000*</b>	<b>,116</b>
<b>Information form friends</b>	<b>39,060</b>	<b>5</b>	<b>,000*</b>	<b>,129</b>
Information form relatives	6,865	5	,231	,054
<b>Information at school</b>	<b>26,112</b>	<b>5</b>	<b>,000*</b>	<b>,106</b>
Information at faculty	8,533	5	,129	,060
<b>Information through an informal system</b>	<b>24,359</b>	<b>5</b>	<b>,000*</b>	<b>,103</b>
<b>Information at work</b>	<b>34,584</b>	<b>5</b>	<b>,000*</b>	<b>,122</b>
Information in religious community	7,586	5	,181	,057
<b>Information on television</b>	<b>30,254</b>	<b>5</b>	<b>,000*</b>	<b>,113</b>
Information on the radio	8,124	5	,150	,059
Information from the press	16,925	5	,006	,085
<b>Information over the Internet</b>	<b>49,340</b>	<b>5</b>	<b>,000*</b>	<b>,145</b>
Trained	5,483	5	,360	,048
<b>Desire for training</b>	<b>39,335</b>	<b>10</b>	<b>,000*</b>	<b>,092</b>
<b>Education through television</b>	<b>29,324</b>	<b>5</b>	<b>,000*</b>	<b>,112</b>
<b>Education on the radio</b>	<b>27,663</b>	<b>5</b>	<b>,000*</b>	<b>,109</b>
<b>Education through video-games</b>	<b>22,005</b>	<b>5</b>	<b>,001*</b>	<b>,098</b>
<b>Education over the Internet</b>	<b>55,052</b>	<b>5</b>	<b>,000*</b>	<b>,154</b>
Education through lectures	5,594	5	,348	,049
Informal system	8,589	5	,127	,060

\* Statistically significant correlation -  $p \leq 0.05$

One-way ANOVA was used to study the influence of marital status on continuous dependent variables of knowledge. Subjects were divided according to marital status in 6 groups (single, in a relationship, engaged, married, divorced, widow/widower). Firstly, using homogeneity of variance test it was examined equality of variances in the results for each of the 6 groups. Bearing in mind the results of Levene Statistic the assumption

of homogeneity of variance is violated in all variables, except for the stuff for emergency situations ( $p = 0.054$ ). Accordingly, it is presented the table „Robust Tests of Equality of Means” and the results of two tests, Welsh's (Welsh) and Brown's (Brown – Forsythe) tests that are resistant to violation of the assumption of homogeneity of variance.

According to the results, there is a statistically significant difference between the means of the groups in the following dependent continuous variables: level of knowledge ( $F = 4.08$ ,  $p = .001$ , eta squared = 0.01 - small influence); flood risk - 1 year ( $F = 4.16$ ,  $p = .001$ , eta squared = 0.008 - small influence); warning systems ( $F = 8.46$ ,  $p = .000$ , eta squared = 0.01 - small influence); Police ( $F = 5.03$ ,  $p = .000$ , eta squared = 0.01 - small influence); first responders ( $F = 7.86$ ,  $p = .000$ , eta squared = 0.01 - small influence); escape routes ( $F = 5.05$ ,  $p = 0.000$ , eta squared = 0.008 – small influence); nearby shelters ( $F = 5.49$ ,  $p = .000$ , eta squared = 0.01 - a small influence); vulnerability assessment and plan ( $F = 6.37$ ,  $p = .000$ , eta squared = 0.011 - a small influence) (Table 4).

Subsequent comparisons using Tukey HSD shows that the mean of:

- level of knowledge about floods statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who live alone ( $M = 3.02$ ,  $SD = 1.01$ ), engaged ( $M = 2.53$ ,  $SD = 1.35$ ) citizens who have lost their spouses ( $M = 2.58$ ,  $SD = 1.02$ ). Thus, it can be said that citizens who live alone recorded the highest level of knowledge about natural disasters caused by floods, while it is the lowest among citizens who are engaged;

- Assessment of risks of flooding within a year statistically significantly ( $p < 0.05$ ), and mutually differs among citizens who are married ( $M = 2.65$ ,  $SD = 1.41$ ), and citizens who are in a relationship ( $M = 2.42$ ,  $SD = 1.35$ ). In married people, assessment of flooding risk is at a higher level compared to citizens who are in a relationship;

- Awareness of warning systems statistically significantly ( $p < 0.05$ ), and mutually differs for citizens who have lost their spouses ( $M = 1.65$ ,  $SD = 0.86$ ), who are married ( $M = 2.30$ ,  $SD = 1.20$ ), which live alone ( $M = 2.25$ ,  $SD = 1.19$ ) and divorced ( $M = 2.46$ ,  $SD = 1.33$ ). Awareness of warning systems is at the highest level among citizens who are divorced, while the smallest among citizens who have lost their spouses;

- Awareness of duties of the police in natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs for citizens who have lost their spouses ( $M = 2.12$ ,  $SD = 1.21$ ) who live alone ( $M = 2.67$ ,  $SD = 1.21$ ), and citizens who are in a relationship ( $M = 2.57$ ,  $SD = 1.15$ ). Citizens who live alone largely marked that they are informed on duties of the police;

- Awareness of duties of first responders in natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs for citizens who are engaged ( $M = 2.22$ ,  $SD = 1.22$ ) live alone ( $M = 2.77$ ,  $SD = 1.22$ ), in a relationship ( $M = 2.72$ ,  $SD = 1.13$ ), and who are married ( $M = 2.87$ ,  $SD = 1.34$ ). Citizens who are married to the greatest extent say that they are informed on duties of first responders in natural disaster caused by floods;

- Awareness of escape routes in natural disasters caused by floods statistically significantly ( $p < 0.05$ ), and mutually differs for citizens who have lost their spouses ( $M = 1.84$ ,  $SD = 1.07$ ) live alone ( $M = 2.45$ ,  $SD = 1.26$ ), married ( $M = 2.46$ ,  $SD = 1.32$ ). Married people mostly say that they are informed about escape routes in case of floods;

<sup>1</sup> Eta-squared = sum of the squares of the different groups / total sum of squares. Cohen classifies 0.01 as a small influence, 0.06 as a medium influence and 0.14 as a large influence (Cohen, 1988 284).

- Awareness of nearby shelters in natural disasters statistically significantly ( $p < 0.05$ ), and mutually differs for citizens who have lost their spouses ( $M = 1.89$ ,  $SD = 1.12$ ) live alone ( $M = 2.34$ ,  $SD = 1.17$ ), in ca relationship ( $M = 2.42$ ,  $SD = 1.14$ ) and divorced ( $M = 2.69$ ,  $SD = 1.38$ ). Divorced people largely indicate that they are familiar with locations of nearby shelters;

- Awareness of vulnerability assessments and plans of protection and sleeping in natural disasters statistically significantly ( $p < 0.05$ ) and mutually differs for citizens who are divorced ( $M = 2.75$ ,  $SD = 1.22$ ), in a relationship ( $M = 2,35$ ,  $SD = 1.14$ ), engaged ( $M = 2.11$ ,  $SD = 1.12$ ), married ( $M = 2.25$ ,  $SD = 1.22$ ), and who have lost their spouses ( $M = 1.91$ ,  $SD = 0.98$ ). The most informed about vulnerability assessments and plans for responding are divorced people.

Table 6 – Results of one-way ANOVA of different marital status groups and continuous dependent variables of knowledge

Homogeneity of variance test				
	Levene Statistic	df1	df2	Sig.
Level of knowledge	6,617	5	2366	,000
Flooding risk – 1 year	11,398	5	2458	,000
Flooding risk – 5 years	4,400	5	2403	,001
Warning systems	3,905	5	2412	,002
Police	3,379	5	2419	,005
First responders	6,007	5	2415	,000
<b>Stuff for emergency situations</b>	<b>2,179</b>	<b>5</b>	<b>2413</b>	<b>,054*</b>
Escape routes	3,491	5	2410	,004
Nearby shelters	2,581	5	2415	,025
Vulnerability assessment and plans	2,392	5	2407	,036

\* The assumption of the equality of variance is not violated - Sig. > 0.05

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Level of knowledge	Different group	25,756	5	5,151	4,965	,000
	Within a group	2454,674	2366	1,037		
	Total	2480,430	2371			
Flooding risk – 1 year	Different group	36,534	5	7,307	4,008	,001
	Within a group	4481,167	2458	1,823		
	Total	4517,701	2463			
Flooding risk – 5 years	Different group	19,850	5	3,970	2,083	,065
	Within a group	4580,151	2403	1,906		
	Total	4600,001	2408			

Warning systems	Different group	37,419	5	7,484	5,328	,000
	Within a group	3388,242	2412	1,405		
	Total	3425,661	2417			
Police	Different group	37,168	5	7,434	4,733	,000
	Within a group	3799,348	2419	1,571		
	Total	3836,515	2424			
First responders	Different group	60,818	5	12,164	7,407	,000
	Within a group	3965,718	2415	1,642		
	Total	4026,535	2420			
Stuff for emergency situations	Different group	25,896	5	5,179	3,183	,007
	Within a group	3926,243	2413	1,627		
	Total	3952,140	2418			
Escape routes	Different group	31,701	5	6,340	3,889	,002
	Within a group	3928,988	2410	1,630		
	Total	3960,689	2415			
Nearby shelters	Different group	41,933	5	8,387	5,568	,000
	Within a group	3637,686	2415	1,506		
	Total	3679,619	2420			
Vulnerability assessments and plans	Different group	41,377	5	8,275	5,745	,000
	Within a group	3466,993	2407	1,440		
	Total	3508,370	2412			

\*There is a statistically significant difference between the means of dependent variables in 6 groups - Sig.  $\leq 0.05$

Robust Testss of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
Level of knowledge	Welch	4,082	5	276,788	,001*
	Brown - Forsythe	4,639	5	410,061	,000*
Flooding risk – 1 year	Welch	4,168	5	292,987	,001*
	Brown - Forsythe	3,816	5	479,677	,002*
Flooding risk – 5 years	Welch	1,928	5	284,149	,090
	Brown - Forsythe	1,909	5	503,565	,091
Warning systems	Welch	8,465	5	294,780	,000*
	Brown - Forsythe	5,375	5	556,345	,000*

Robust Testss of Equality of Means					
		Statistic <sup>a</sup>	df1	df2	Sig.
Police	Welch	5,036	5	293,171	,000*
	Brown - Forsythe	4,846	5	608,115	,000*
First responders	Welch	7,865	5	293,441	,000*
	Brown - Forsythe	7,770	5	601,947	,000*
Stuff for emergency situations	Welch	3,325	5	292,318	,006*
	Brown - Forsythe	3,203	5	575,515	,007*
Escape routes	Welch	5,057	5	295,092	,000*
	Brown - Forsythe	4,255	5	644,058	,001*
Nearby shelters	Welch	5,490	5	292,072	,000*
	Brown - Forsythe	5,487	5	566,753	,000*
Vulnerability assessments and plans	Welch	6,370	5	293,882	,000*
	Brown - Forsythe	6,291	5	681,558	,000*

a. Asymptotically F distributed.

\* There is a statistically significant difference between the means of dependent variables in 6 groups  
 - Sig. ≤ 0.05

The results of Chi-square test of independence ( $\chi^2$ ) showed a statistically significant relationship between marital status and the following variables on supplies and plans: supplies at home ( $p = 0.000 < 0.05$ ,  $v = 0.10$  - medium influence); food supply ( $p = 0.019 < 0.05$ ,  $v = 0.11$  - medium influence); water supply ( $p = 0.000 < 0.05$ ,  $v = 0.16$  - medium influence); radio-transistor ( $p = 0.004 < 0.05$ ,  $v = 0.11$  - medium influence); restocking ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - medium influence); supplies in the car ( $p = 0.000 < 0.05$ ,  $v = 0.11$  - medium influence); first aid kit at home ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); first aid kit in the vehicle ( $p = 0.000 < 0.05$ ,  $v = 0.14$  - medium influence); first aid kit - easily accessible ( $p = 0.000 < 0.05$ ,  $v = 0.13$  - medium influence); plan for response ( $p = 0.000 < 0.05$ ,  $v = 0.07$  - medium influence); Discussion on the plan ( $p = 0.000 < 0.05$ ,  $v = 0.09$  - medium influence); copies of documents ( $p = 0.000 < 0.05$ ,  $v = 0.12$  - medium influence); insurance ( $p = 0.000 < 0.05$ ,  $v = 0.17$  - medium influence) (Table 181).<sup>2</sup> More generally speaking, in relation to marital status:

- Engaged citizens in the highest percentage: have supplies (34.3%), food supply for a day (23.8%), water supply for 4 days (77.8%), annually replenish supplies (51.4%);
- Citizens who live alone in the highest percentage (28.5%) have supplies of food for two days; in the highest percentage (30.5%) have supplies of water for one day;
- Married citizens in the highest percentage (66.1%) have food supplies for 4 days, hold a first aid kit in an easily accessible place (70.9%), discuss with family members about plans (17.7%);
- Citizens who are in a relationship: in the highest percentage (30.5%) have supplies of water for two days, unwritten plans in case of floods (14.2%);

<sup>2</sup> Since the case is a table bigger than 2 x 2, to assess the size of the influence it is used Cramers V indicator which takes into account the number of degrees of freedom. Accordingly, we used the following criteria: R-1 or K-1 is 1: small = 0.01, medium = 0.30 and large = 0.50; R-1 or K-1 is 2 (three categories): Small = 0.07, medium = 0.21 and large = 0.35; and R-1 or K-1 is 3 (four categories): small = 0.06, medium = 0.17 and large = 0.29 (Gravetter & Wallnau, 2004).

- Divorced people in the highest percentage (34.1) have a transistor radio, insurance of house/apartment against the consequences of floods (17.2%) supplies in the car (12.2%) have a first aid kit at home (53.7%) replenish supplies once a month (38.6%);
- Citizens who have lost their spouses in the highest percentage (2.7%) have written plans in case of floods, copies of important financial and other personal documents (35.3%).

Table 7 – Review of the results of Chi-square test of independence ( $\chi^2$ ) of marital status and possession of supplies and response plans

Categorical variables	value	df	Asymp. Sig. (2 - sided)	Cramers v
<b>Supplies at home</b>	<b>48,822</b>	<b>10</b>	<b>,000*</b>	<b>,101</b>
<b>Food supplies</b>	<b>21,395</b>	<b>10</b>	<b>,019*</b>	<b>,119</b>
<b>Water supplies</b>	<b>38,757</b>	<b>10</b>	<b>,000*</b>	<b>,166</b>
<b>Radio-transistor</b>	<b>17,106</b>	<b>5</b>	<b>,004*</b>	<b>,117</b>
Flashlight	10,225	5	,069	,090
Shovel	6,901	5	,228	,074
Hack	8,109	5	,150	,080
Hoe and spade	7,064	5	,216	,074
Apparatus for firefighting	6,711	5	,243	,075
<b>Restocking</b>	<b>34,854</b>	<b>10</b>	<b>,000*</b>	<b>,116</b>
<b>Supplies in the car</b>	<b>81,809</b>	<b>15</b>	<b>,000*</b>	<b>,110</b>
<b>First aid kit at home</b>	<b>70,140</b>	<b>10</b>	<b>,000*</b>	<b>,124</b>
<b>First aid kit in the vehicle</b>	<b>78,924</b>	<b>10</b>	<b>,000*</b>	<b>,146</b>
<b>First aid kit- easily accessible</b>	<b>74,223</b>	<b>10</b>	<b>,000*</b>	<b>,136</b>
<b>Plan for response</b>	<b>44,555</b>	<b>15</b>	<b>,000*</b>	<b>,079</b>
<b>Discussion of the plan</b>	<b>39,311</b>	<b>10</b>	<b>,000*</b>	<b>,094</b>
<b>Copies of documents</b>	<b>66,363</b>	<b>10</b>	<b>,000*</b>	<b>,123</b>
<b>Insurance</b>	<b>139,969</b>	<b>10</b>	<b>,000*</b>	<b>,172</b>

\* statistically significant correlation -  $p \leq 0.05$

## Conclusion with recommendations

Examining the correlation between marital status and preparedness of citizens for response to a natural disaster caused by flood in the Republic of Serbia we came to diverse conclusions. In the highest percentage:

- Citizens who are not in a relationship would engage in providing help to population in the field and the collective centers for providing help to victims of floods, they say that someone at primary/secondary school educated them about floods, have acquired information about floods from a friend, they would like to undergo some form of training for dealing with natural disasters caused by floods, they want to be educated through video - games;

- Citizens who are in relationship think about preparedness for floods due to visiting to flooded areas, they point out that someone educated them about floods in the family, have acquired information about floods at school, through the Internet, they want to be educated through the Internet, have water supplies for two days, unwritten plans in case of floods;



- Citizens who are engaged take preventive measures to reduce tangible consequences of floods, are not yet prepared, but will start preparing next month, have recently started to prepare, have prepared for at least 6 months, would be evacuated to the upper floors of the house, acquired information on floods at faculty, through an informal system of education, they have supplies, food supplies for a day, supplies of water for 4 days, they replenish their supplies once a year;

- Citizens who are married would give money to help flood victims, long-lasting rains make them to think about preparedness for floods, they know what the flood, are familiar with viruses and infections that accompany the period during and after the flood, they know where in local community elders, disabled and infants live, know safety procedures for responding during floods, would be evacuated to a friend's place, say that someone at work educated them about floods, know how to handle water valve, gas valve, electricity switch, acquired information about floods in the press, have food supplies for 4 days, hold a first aid kit in an easily accessible place, discuss with family members about the plans,

- Citizens who are divorced are not yet prepared, but intend to get prepared in the next 6 months, would evacuate to neighbors' places, they know where electricity switch is, have gained information about floods from household members, they want to be educated on the radio;

- Citizens who have lost their spouses media reports make them to think about preparedness for responding to floods, do not do anything to prepare themselves, would evacuate in detention centers, they know what help is required by elders, disabled and infants, they know where water valve is, gas valve, gained information about floods from neighbors, they want to be educated through television;

On the other hand, in the smallest percentage:

- Citizens who are not in a relationship point out that someone at work educated them about floods, they know what to do after an official warning about the approach of the flood, they know where the water valve is;

- Citizens who are in a relationship would be engaged in reception centers to assist victims of floods, they know what assistance is required by elders, disabled and infants, they know where electricity switch is, know how to handle water valve, gas valve, gained information on floods from neighbors, want to gain information through television;

- Citizens who are engaged think on preparedness for floods due to visiting to flooded areas, media reports, do not do anything to prepare themselves, have acquired information about floods from household members (16.1%) want to be educated through the radio (1.6%);

- Citizens who are divorced take preventive measures to reduce tangible consequences of floods, are not yet prepared, but will start preparing next month, have recently started preparations, they know what flood is, would be evacuated to the upper floors of the house, would be evacuated to reception centers, say that someone at primary/second school and within family educated them on floods, know what to do after an official warning about the approach of the flood, gained information about floods at faculty, acquired information about floods through informal system of education, in the press, they want to be educated through video - games;

- Citizens who are married acquired information on floods at school;

- Citizens who have lost their spouses would give money to help flood victims, have prepared for at least 6 months; would engage to provide help to threatened population in

the field, think about preparedness for floods due to long-lasting rains, are not yet prepared, but intend to get prepared in the next 6 months, they are familiar with safety procedures for responding during floods, are familiar with viruses and infections accompanying the period during and after the floods, would be evacuated to neighbors' places, they know where in local community elders, disabled and infants live, acquired information about floods from a friend, over the Internet, want to undergo some form of training for dealing with natural disasters caused by floods, they want to be educated over the Internet;

Furthermore, the results showed: citizens who live alone showed the highest level of preparedness of households and individual preparedness for response, while the lowest among citizens who lost their spouses; citizens who are in a relationship recorded the highest level of preparedness of the local community for response, and the lowest among citizens who lost their spouses; citizens who live alone recorded the highest level of confidence in their own abilities and capabilities to cope with consequences, while the lowest among citizens who lost their spouses; citizens who are in a relationship recorded the highest level of awareness about flood risks compared to citizens who have lost their spouses who showed the lowest level; citizens who live alone recorded the highest level of knowledge about natural disasters caused by flooding, while the lowest is among citizens who are engaged; in married people, assessment of flooding risk is higher compared to citizens who are in a relationship; the best informed about threat assessments and plans are divorced people.

In terms of marital status, it should influence on citizens who are in a relationship to engage in collective centers to provide assistance to flood victims. Furthermore, citizens who are in a relationship, should be educated over the Internet about location of electricity switch, how to handle valves for water and gas. Citizens who have lost their spouses should be encouraged to take measures of preparedness through visit to flooded areas and media reports. They should be informed on potential flooding risks. Citizens who are divorced should be encouraged to take preventive measures to reduce tangible consequences of floods. They need to be educated about floods and what they should do after an official warning about the approach of the flood wave. Citizens who are not in a relationship showed the highest affinity for response training. Also, it is necessary to educate them what they should do after an official warning about the approach of the flood, and where water valve is. Citizens who are married should provide water supplies for four days, transistor radio, flashlight. They need to be informed about duties of the police, first responders and the army.

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# USE OF FORCE TRACKING SYSTEMS DURING NATURAL CATASTROPHES

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The flood that engulfed Bosnia and Herzegovina, the Republic of Serbia and the Republic of Croatia in 2014 imposed a need to establish a more efficient system of command and control over involved units and departments. The complexity of the situation, as well as the composition and cooperation between various forces in the field gave rise to consider the applying of modern systems of command and control. The paper presents the basic characteristics of modern information system of command and control that are currently in use in the armed forces and civilian power structures of developed countries. Using historical method and the chronology is seen development of Blue Force Tracking, Tactical Ground Reporting i GeoSuite systems. By analyzing and comparing these systems we have come to conclusions on their advantages and disadvantages. At the end, there are the suggestions for the development of its own system.

*Key words: natural catastrophes, command and control, Blue Force Tracking, Tactical Ground Reporting System, force tracking systems and system GeoSuite*

## Introduction

Natural and other catastrophes and accidents, by the damage they do and casualties they cause are a big threat to the security of a state. One of the tasks of modern armed forces worldwide is to assist civil authorities in responding to natural and other catastrophes and accidents,<sup>1</sup> or providing assistance in cases of large-scale natural disasters, in which human lives, environment and material goods are endangered<sup>2</sup>. When implementing this, task units of the armed forces on the ground cooperate with the forces of civil authorities (civil defense, police, rescues services, and so on) as well as the specialized units of foreign countries. Directing and coordination of all these elements in the field is difficult because of the different organizations of the same, but also because of the specifics of the task.

The system of command and control allows commanders and leaders to execute assigned mission and tasks and, in the same time, enables them to get an insight into the situation and capabilities of subordinates. The success of the work of commands, among other things, to a large extent depends on the knowledge status and their own units'

<sup>1</sup> Law on Defense of Bosnia and Herzegovina, Sarajevo, 15 October 2005, article 4), p. 1.

<sup>2</sup> Defence Strategy of the Republic of Serbia, Belgrade, October 2009, p. 15.

disposition. This is achieved by the control, i.e. through its key elements: information, communication and structure. Effective communication is the basis of achieving effective command and control. Communication allows for the delivery and sharing of information within the structure. The information flows vertically (within the chain of command) and horizontally (among subordinate, adjacent, supporting, and supported units).<sup>3</sup>

Particular contribution in these situations provides geospatial intelligence elements. Geospatial intelligence provides a wide spectrum of support to decision makers and units on the field, ranging from the estimate of the situation on the ground, assessment of weather and soil conditions, to monitoring and coordination of the activities of armed forces and civilian authorities units. Geographic information systems, systems for monitoring troops on the ground and various types of simulations that were until recently the privilege of the armed forces in combat, nowadays may find its use during emergencies.

On the other hand, some of the commercial technologies were used for increasing the operational efficiency of the US Army at the beginning of XXI century. The aim was to enable the sharing of information and improve cooperation between units at the tactical level that had a need for updated information by superiors and neighboring units with the aim to enable them to successfully complete its task. This concept is called "edge-enabled system". It is designed for users who do not have access to "thick-client terminal", which are actually the soldiers on the ground.

In this way the soldiers in the field have been given access to relevant information, but also the obligation to collect them and report on them. They are collectors and users of information. In this system, the data is not necessarily tied to any device or platform, but they can be accessed from any device that is connected to the system, so called "cloud storage". Also, the system can be adjusted by offering different configurations, settings, applications or themes so that it can respond to different needs. Thus, similar to the "smart" phones that use the Android or similar operating system. US Army conducted the adaptation of new systems for its own needs, and to enable better horizontal and vertical communication through the system of command and control.

Soldiers in war environment face rapidly changing, highly flexible and everywhere present enemy. Decentralization of the chain of command is essential for performing the tasks which focus on the mission, and these systems are coming to meet their needs.<sup>4</sup> The situation is similar with a variety of services that are involved in emergency situations such as natural disasters.

## Blue Force Tracking – BFT

In the late eighties and early nineties of the last century there has been a rapid development in the field of computer science. Innovation and continuous improvement of software and hardware caused huge changes in the World over the last three decades. The armed forces of

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<sup>3</sup> FM 6-0, Mission Command: Command and Control of Army Forces, US Army Training and Doctrine Command, august 2003, chapter 3.

<sup>4</sup> *Cerdec's work in developing, assessing and adapting hand-held solutions and commercial applications for the battlefield*, August 25, 2010, Washington, DC, Department of Defense, visited the day: 14 March 2015, [http://www.defense.gov/Blog\\_files/Blog\\_assets/20100825\\_anthony\\_transcript.pdf](http://www.defense.gov/Blog_files/Blog_assets/20100825_anthony_transcript.pdf).

the United States took advantage of advances of this technology. Based on the experience of the Gulf War<sup>5</sup> they decided to carry out the integration of this computer technology into their units.

US Army began work on the program FBCB2<sup>6</sup> in 1994, along with the institutional and operational reorganization.<sup>7</sup> Development of Global Positioning System (GPS) during the penultimate decade of the twentieth century, has allowed commanders and soldiers at all levels of command, accurate and timely information about their position in space. They immediately recognized the significance of information about the locations of subordinate commanders, neighbor and opponent units. The aim was to create a command and information network system that will enable the units on the battlefield to get situational awareness in real time on the issues: disposition of friendly and enemy forces presented on operational maps and graphs, as well as orders and requests from the command and control chain.



Fig. 1 – BFT interface

FBCB2 used GPS transceivers that are located primarily in the brigade and lower levels mobile command posts. Information about units' location has been delivered to other units via radio network - Combat Net Radios. Locations of vehicles are displayed on a digital map which

<sup>5</sup> Sand storms disabled accurate location determination and discerning between friendly and enemy elements.

<sup>6</sup> Digital command system Force XXI Battle Command Brigade and Below (FBCB2).

<sup>7</sup> James L. Conatser, Vincent E. Grizio, *Force XXI Battle Command Brigade and Below-Blue Force Tracking (FBCB2-BFT)*, Naval Postgraduate School, Monterey, California, December 2005.

is set in computers in vehicles.<sup>8</sup> Also, the soldiers were able to find in their maps information about the enemy (that update intelligence authorities), the operational borders and restricted areas. FBCB2 enabled sending text messages, orders and requests for combat support.<sup>9</sup>

When the Army deployed to the Balkans, however, it discovered that the mountainous terrain and relatively thinly deployed patrol vehicles in Bosnia and Kosovo imposed significant limitations on a tactical internet using ground-based line-of-sight radios. To overcome this, FBCB2 was adapted to communicate over commercial satellites using transceivers bolted to the tops of vehicles. This configuration came to be known as “FBCB2-Blue Force Tracking” or “FBCB2-BFT”<sup>10</sup> (commonly called “BFT”) to distinguish it from the original FBCB2. The Army units equipped with BFT were able to answer the three critical questions – “Where am I? Where are my forces? Where is the enemy?” – with previously impossible speed and accuracy, even when spread over vast distances.<sup>11</sup>

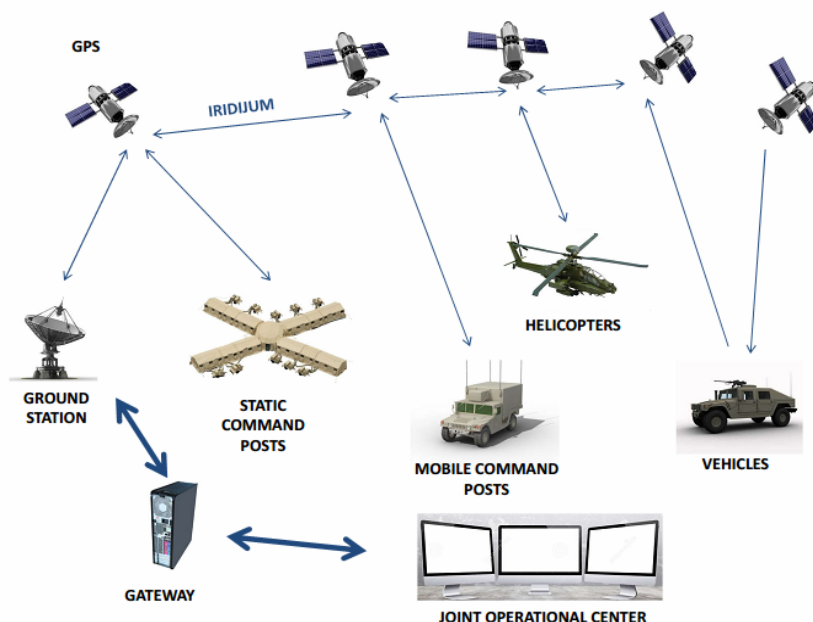


Fig. 2 – Diagram of the system BFT

<sup>8</sup> Richard J. Dunn III, "Blue Force Tracking, The Afghanistan and Iraq Experience and Its Implications for the U.S. Army", *Northrup Grumman Mission Systems*, 2005, p.4.

<sup>9</sup> Richard J. Dunn III, "Blue Force Tracking, The Afghanistan and Iraq Experience and Its Implications for the U.S. Army", *Northrup Grumman Mission Systems*, 2005, p.4.

<sup>10</sup> Force XXI Battle Command Brigade and Below (FBCB2) Blue Force Tracker (BFT).

<sup>11</sup> Richard J. Dunn III, "Blue Force Tracking, The Afghanistan and Iraq Experience and Its Implications for the U.S. Army", *Northrup Grumman Mission Systems*, 2005, p.7.



FBCB2 JCR/BFT<sup>12</sup> is enhanced by technology FBCB2/BFT which enables interoperability between the US Army and the US Marine Corps. FBCB2/BFT came into use among the units that are in Afghanistan in October 2012. Improvements include renewed hardware and software; the more improved and faster satellite connection and additional security devices for communications and cryptographic data protection.<sup>13</sup> It is used to send information and notification by the brigade unit level toward subordinated elements and to exchange data about location and direction of movement between the elements in combat with the aim of synchronizing operations and reducing fratricide.

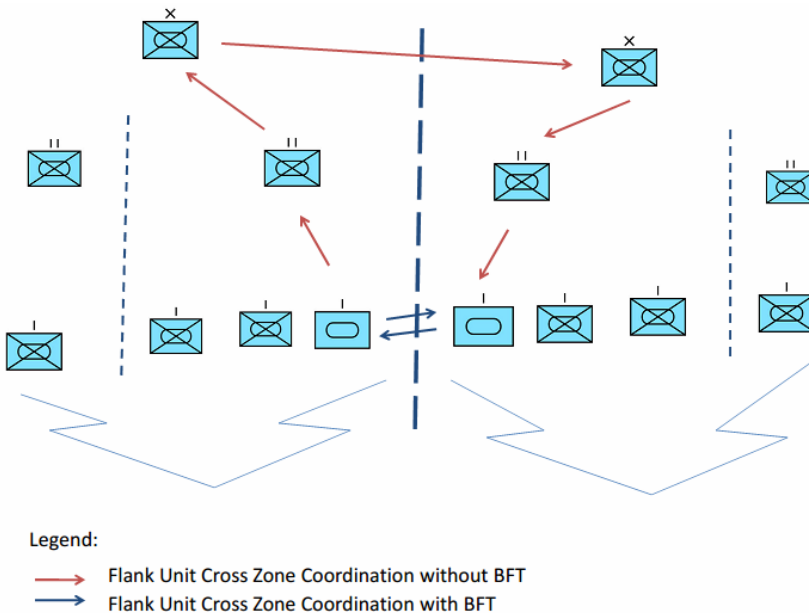


Fig. 3 – Cross Brigade Zone of Attack Coordination<sup>14</sup>

The good sides of the BFT:

- It allows commanders quickly, accurately and very effective command and control of subordinate, but also cooperation between neighboring units in the field.
- Cooperation between units is increased (fig. 2). Commanders and leaders at all levels command have the same access to information via computer and they know where their superior and subordinated units are at any moment.

<sup>12</sup> Force XXI Battle Command Brigade and Below (FBCB2) Joint Capabilities Release (JCR) Blue Force Tracker 2 (BFT2).

<sup>13</sup> Nancy Jones-Bonbrest, "Situational Awareness for a Digital Generation", *Armor & Mobility*, November 2013, Tactical Defense Media, Inc. Silver Spring, MD, p.3-4.

<sup>14</sup> Richard J. Dunn III, "Blue Force Tracking, The Afghanistan and Iraq Experience and Its Implications for the U.S. Army", *Northrup Grumman Mission Systems*, 2005, p.10 (Figure 2: Cross Brigade Zone of Attack Coordination).

- Commanders can issue immediate orders to fire and logistical support to subordinate units due to accurate knowledge of the location of subordinates and enemy units.
- Avoiding of fratricide. Although there are systems to identify enemy vehicles<sup>15</sup> and units, BFT has a significant role to avoid friendly fire.<sup>16</sup>
- All of the above increases self-confidence and strengthens trust between units in the field and their leaders.

Disadvantages of BFT are:

- Inability to update the location of enemy forces by units in the field.
- Disabled intelligence databases access due to the security of classified information. This disables the creation of accurate and timely picture of the opponent's positions and intentions.
- Lack of tools for planning and monitoring achieved in regard to planned.
- Necessity of increasing the flow of data through satellite communications.
- Inability to support the lowest infantry tactical elements in counterterrorism and insurgent activities. (The system works only in vehicles. There is no possibility that would be carried by the infantry dismounted warfighters.)
- Errors in determining the location on the ground and temporary errors.

It is anticipated that the JBC-P<sup>17</sup> replace JCR during 2014. The new platform allows communication between infantry units, vehicles, aircraft and senior staffs by exchanging voice, data and image over large distances. The new interface is based on the experiences of soldiers from the battlefield. JBC-P includes ASCOPE<sup>18</sup> option that allows commanders planning operations, estimate of the situation and risk mitigation. Perhaps the most important is to enable the exchange and use of data from the Tactical Ground Reporting System. Teams and platoon leaders get mobile network device that connects to the system via the Network Services Gateway (NSG). NSG uses Internet protocol (IP) interface. Mobile devices are connected to the network via the radio device. With this, commanders on the command posts have knowledge of the disposition of their dismounted soldiers on the ground. Also, except of the command, this enables control of subordinated units.

## Tactical Ground Reporting system – TiGR

Tactical Ground Reporting (TiGR) is an information-centric system that enables users to collect, share and analyze data using a Google Earth like interface. It was developed by C4 Systems General Dynamics. The research project was sponsored by the Defense Advanced Research Projects Agency (DARPA). It was developed in line with needs of leaders operating at company and below levels in order to increase combat effectiveness across the full

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<sup>15</sup> e.g.: Recognition of Combat Vehicles (ROC-V). More about ROC-V: John O'Connor and Christina Bates, "Confirming ID: Friend or Foe", *Armor & Mobility*, November 2013, Tactical Defense Media, Inc. Silver Spring, MD, p.12-13 and Michael M. Sweeney, "Blue Force Tracking: Building A Joint Capability", *U.S. Army War College*, Carlisle Barracks, PA, 2008, p.3.

<sup>16</sup> During the major combat phase of Operation "Iraqi Freedom" only one soldier was killed due to direct friendly fire. On the other hand, during Operation "Desert Storm" by direct friendly fire were killed 35 soldiers, and 72 wounded.

<sup>17</sup> Joint Battle Command-Platform (JBC-P).

<sup>18</sup> Areas, Structures, Capabilities, Organizations, People, and Events (ASCOPE).

spectrum of operations, i.e. because of need that small dismantled units increase combat efficiency in all types of combat operations. It has been in troop use since November 2007.<sup>19</sup>

TiGR breaks from the traditional hierarchical, bottom-up filtered information flow of reporting, and instead builds on the successes of direct peer-to-peer collaboration.<sup>20</sup> Its collaborative environment provides a unique multimedia solution using graphics, high resolution imagery, line of sight tools, and a searchable database to support the full spectrum of operations. Of particular importance is its role in planning, preparations, assessments and execution of tasks. Data submission network is sufficiently flexible to respond to challenges at the tactical level.<sup>21</sup>

Good sides of TiGR system are:

- Allows an insight into the situation on the ground through a visual display unit placement in the field and at all levels of command.
- Support of all types of combat systems and units.
- Enhanced information flow between the company commanders and platoon commanders.
- Full cooperation in the field between the lower tactical units, the basic tactical units and operational centers.
- It is designed to be used around the world.
- Information distribution network is compatible with various command and control tactical network systems, which include receiving and exchanging data.
- Mapping is done using Web Mapping Service (WMS), which provides access to high-resolution graphs.
- The ability to record current operations and their storage in the database, as well as the possibility of using them for after-action analysis.
- Possibility of adjustment and adaptation of the user interface depending on the needs and personal experiences.
- To use the application you need to conduct a short-term training. Training for the use of applications takes 30 minutes due to the simplicity of the application and the previous user's knowledge.<sup>22</sup>

Unit commanders on the ground have had very positive experiences with TiGR system.<sup>23</sup> The problems are mainly related to security issues:

- Not all of the soldiers on the battlefield have the same level of access to classified information.
- User authentication.
- Risks that involve transferring data wirelessly.
- The issue of crypto protection.

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<sup>19</sup> *Tactical Ground Reporting System (TiGR)*, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 14 March 2015, <http://www.gdc4s.com/tactical-ground-reporting-system-%28TiGR%29.html>

<sup>20</sup> *Tactical Ground Reporting System (TiGR)*, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 14 March 2015, <http://www.gdc4s.com/tactical-ground-reporting-system-%28TiGR%29.html>

<sup>21</sup> *Todd Hack Talks About Building The TiGR App*, 5 September 2014, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 13 March 2015, <http://thesoldiersnetwork.com/creating-TiGR/>.

<sup>22</sup> *Tactical Ground Reporting (TiGR) System*, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 14 March 2015, <http://www.gdc4s.com/Documents/Programs/TiGR%20Handout-Final.pdf>

<sup>23</sup> *Cerdec's work in developing, assessing and adapting hand-held solutions and commercial applications for the battlefield*, August 25, 2010, Washington, DC, Department of Defense, visited the day: 14 March 2015, [http://www.defense.gov/Blog\\_files/Blog\\_assets/20100825\\_anthony\\_transcript.pdf](http://www.defense.gov/Blog_files/Blog_assets/20100825_anthony_transcript.pdf), p.4.

The TiGR architecture consists of clients, mobile servers, edge servers, and core servers.<sup>24</sup> Core servers are located in large bases with reliable facilities including good network connectivity. They are home to search information for all content created in a theater of operation. Edge servers are typically located in smaller forward operating bases. These servers provide local content and also serve as a conduit through which content is obtained from the other servers in the network. Mobile servers are placed in command vehicles which enable the constant data flow. The clients use stationary and mobile computers with browsers.

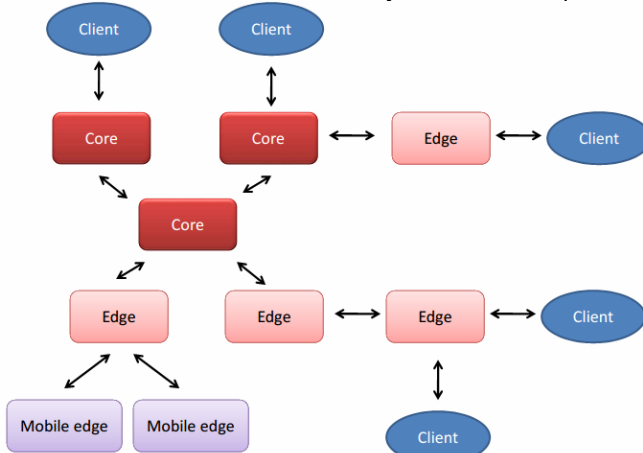


Fig. 4 – Sample TiGR logical network<sup>25</sup>

TiGR interface is based on geographic maps. The interactive display allows commanders quick overview of information related to the field, events, residents and facilities with the aim of effectively and timely disclosure of information before, during and after the execution of the task. Visualization of information with topographic maps and GPS positioning in real time provide fast and accurate view to software users.

The simple interface is based on a system of menus and tabs close to the young generation of soldiers they have on their laptops and smart phones. There are five tabs: Search, Create, Forums, Messages and Profile.

For TiGR system's users in the field, General Dynamics has developed a robust GD300 tactical computer. Through various radio and satellite systems, it connects the soldiers in the field with the command centers and allows communication at great distances.<sup>26,27</sup> TiGR

<sup>24</sup> *TiGR: The Tactical Ground Reporting System*, October 2013, New York, NY, IEEE Communications Magazine, visited the day: 16 March 2015, <http://cae.itc.ku.edu/papers/TiGR.pdf>, p.45.

<sup>25</sup> Joseph B. Evans and others, "TiGR: The Tactical Ground Reporting System", *IEEE Communications Magazine*, New York, NY, October 2013, visited the day: 16 March 2015, <http://cae.itc.ku.edu/papers/TiGR.pdf>, p.47.

<sup>26</sup> *General Dynamics to Deliver Prototype Equipment to Enhance Battlefield Situational Awareness for Soldiers and Marines*, March 18, 2011, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 14 March 2015, <http://www.gdc4s.com/news/archives-news/2011/mar-18-2011.html>.

<sup>27</sup> *GD300*, Sunrise, FL, General Dynamics Itronix, visited the day: 14 March 2015, <http://www.infotim.com/resources/files/pic/GD300.pdf>

applications with the radio AN/PRC-154 and GD300 tactical computer were delivered to 75<sup>th</sup> Ranger Regiment, which was deployed to Afghanistan at the beginning of the 2012th.<sup>28</sup>

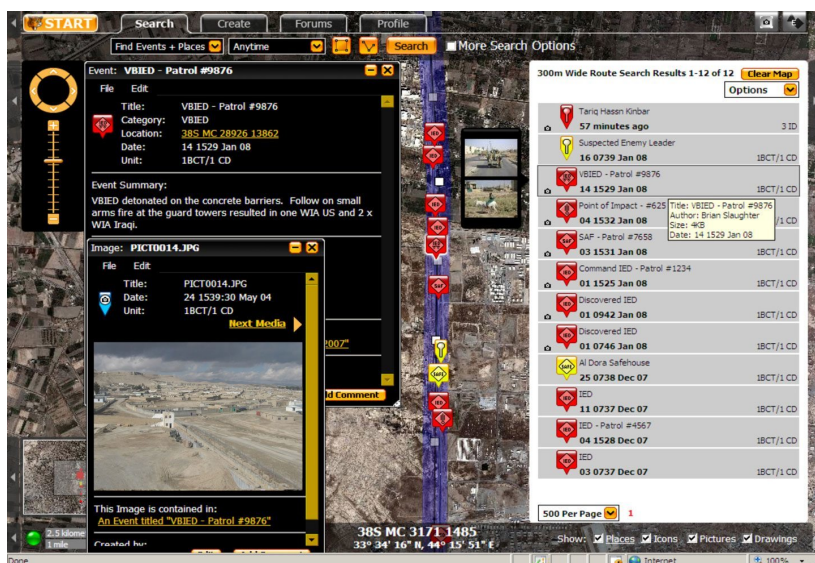


Fig. 5 – TIGR interface<sup>29</sup>



Fig. 6 – GD300 tactical computer

<sup>28</sup> General Dynamics Rifleman Radio and GD300 Go to Afghanistan with U.S. Army's 75th Ranger Regiment, visited the day: 14 March 2015, <http://www.gdc4s.com/news/archives-news/2012/jan-23-2012.html>

<sup>29</sup> Gardner Tim, "TIGR (Tactical Ground Reporting) Handbook", Afghanistan, 23 Dec 2010, p. 10.

## GeoSuite

GeoSuite is a multimedia system that allows data collection, reporting and sharing of information to its users. The system is designed to TiGR system, that is suited for commercial use. It is especially designed for users at lower levels of the hierarchical chain, such as police officers, lifeguards, field operatives and volunteers. It is designed for better awareness of the situation on the ground, easier cooperation and sharing of information between the users and the analysis after the execution of tasks and missions.<sup>30</sup>

GeoSuite can be installed on all devices that have Windows or Android operating systems as the basis. It assists senior staff in the planning, coordination and cooperation in the high-risk events such as political meetings, parades, sports events, convoy escorts, and so on. There are several software versions of GeoSuite, which allows its use in command centers,<sup>31</sup> vehicles<sup>32</sup> or field officers.<sup>33</sup> Mobile devices and computers equipped with software GeoSuite are connected wirelessly to a centralized secure server. It serves for the storage: information gathered by field officers, data collected through sensors and cameras, and features a complete history of information, orders and instructions of operational centers.

Main features and capabilities of GeoSuite software are:

- Provides critical information to the users on the ground;
- Allows the cooperation between the personnel on the ground, dispatchers and command centers;
- Current announcements - Service members can automatically receive text or e-mail notifications, which are classified by keyword, data, sites or other parameters;
- Information sharing - Using geo-referenced information, the service members can inform colleagues about upcoming activities;
- Cooperation - More services can receive text and e-mail updates about criminal or suspicious activities from sensors that can be customized by the user;
- Multimedia content - Pictures, video and live image transmission available with different types of cameras, motion sensors and other sources that can be saved and stored;
- Currently determine location - Using GPS, the service members can determine their location and locations of their collaborators on the ground in real time;
- Maps - Through GeoSuite they can access to geographic maps and cartographic services that are on the Internet;
- Continuous operational - Access to databases is possible when the wireless network connection or battery power temporarily disabled;
- Very suitable for the execution of tasks - from local and global;
- Training for users is carried out for 90 minutes.

<sup>30</sup> *GeoSuite*, Scottsdale, AZ, General Dynamics Mission Systems, visited the day: 14 March 2015, <http://www.gdc4s.com/geosuite>.

<sup>31</sup> *GeoSuite Command*: It is the server-based software that resides within the confines of relatively stable and established operation centres.

<sup>32</sup> *GeoSuite Platform*: It is the vehicle software that conforms to the needs of the varying operating systems that reside within vehicle platforms.

<sup>33</sup> *GeoSuite Handheld*: It is the mobile software application that can be downloaded to a majority of handheld devices. As a simple application, users receive the full value and power that is GeoSuite and can interact with others in platforms or command centres.

GeoSuite software is used by some of the police and firefighter units in the United States. Through this system, these units are associated with operational centers for emergency situations, detachment of national security and anti-terrorist information centers. In this way, the participants of the system are aware of the arrangement of the various units in the field. Also, it is possible to gain insight into the current and ended incidents by priority engagement, gain insight into the video surveillance footage set in public places and access archived photos. Perhaps most important, it allows an exchange of data between different units in the field in real time.

## Conclusion

During the initial experiments with FCB2 in 1995, location determining and command and control are drastically improved. Compared with the orders that are transmitted by radio and paper topographic maps, the transition to the new system was interpreted as a transition from black-and-white images on a live color image of the highest quality. With FCB2 soldiers knew the exact location on the land in real time. Although they were in the desert with no roads, in the middle of a sandstorm and completely blinded, they were able to see the icon of your own vehicles moving on the digital topographic map or photograph. In the same way, they knew the position of the rest of the unit and the other friendly units without reading topographic maps, using radio communication and stopping unit to determine location and perform unit's alignment. If the intelligence staff has done a good job, then the information about the enemy was also shown on the screen.<sup>34</sup>

With the supply of the TiGR system all of mentioned benefits became available to the soldiers and leaders of the units at the end of the chain of command. A huge advantage is that the decision-makers have enough time to make decisions. Military technology is often turned into commercial flows and becomes available to civilian part of the population. There are many examples: mobile telephony, internet, global positioning systems and so on. Nowadays, this is the case with the TiGR system.

Large-scale natural disasters such as flood that has affected the countries of the river Sava basin in 2014 is proof that small states cannot resist alone to threats. Assistance of other countries, which is reflected in the sending of specialized units, is necessary. Also, the country that was hit by a natural disaster mobilizes all available resources. Command and coordination of all the above mentioned elements is difficult because of their diversity. With the introduction of the system in use, controlling and reporting would certainly increase the efficiency in the execution of tasks with the least possible involvement of forces and means. Creating an application that could be used in natural disasters does not require a lot of money especially if it was a regional project. Moreover, this application would overcome the language barrier, because it would be enabled for use of different languages in the system. This would decrease errors in the command due to a misunderstanding too. Also, the application could be used to "smart" phones and it would be

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<sup>34</sup> Richard J. Dunn III, "Blue Force Tracking, The Afghanistan and Iraq Experience and Its Implications for the U.S. Army", *Northrup Grumman Mission Systems*, 2005, p. 4-5.

available to anybody who possess them and with data access permissions. The issue of security data during natural disasters is certainly not as significant as during the execution of combat operations. Without doubt, only units' commanders in the command system would have access to information. It is primarily due to licking data from the command system to avoid demoralization and creating panic among the population.

This digital system of command and control has become a very powerful tool in the hands of commanders. There are still no comprehensive, systematic assessment of the impact of these technologies on a decision making process.<sup>35</sup> Therefore, the question remains: Does such a tool in the future may play a role in a decision making process which until now belonged to the human beings?

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<sup>35</sup> David J. Bryant and David G. Smith, "Impact of Blue Force Tracking on Combat Identification Judgments", *Defence Research and Development*, Toronto, Canada, February 2013, p.88-89.



# PROJECT MANAGEMENT COMPETENCE IN THE DEVELOPMENT OF ECONOMY AND CIVIL AND DEFENCE SECTORS

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Project management college

The composition of the project management paper is based on several key issues. The emphasis is placed on the features that provide a general level of knowledge of project management competences in formulating the strategy of project objectives, the knowledge of corporate tools in assessing effective investment, the creation of an optimal capital structure of the project, as well as in creating the project benefits in the social environment, military organization systems, community, group etc. Effective project management is a source of positive social impact, with the potential to assist in lifting people out of poverty and efficient functioning of the system as a whole. It is often a powerful way to achieve innovation of products and services, business models and management of processes and various types of military operations. Therefore, it is important to mobilize the investment assets of businesses and knowledge through more efficient cooperation with organizations and institutions within the economy, society and the military. The process of Serbia's convergence towards "common European homeland" is an imperative and therefore education and competencies should have an important place in the promotion of the specific field of project manager competencies as well as command structures at various levels.

*Key words: acquisition of competencies, project manager, socio-economic development, globalization, legal institutions, military operations*

## Introductory Considerations

The subject of the paper covers several key issues related to education and acquisition of competencies in a democratic society, with a focus on the specific field of the project manager competence. New events and findings require adjustment of our socio-economic system to contemporary approaches to macroeconomics and key trends in Europe, including the defense system. That is why certain researches have been translated into this work, in order to more explicitly point to the required level of methodological knowledge in solving the project task of evaluating the efficiency of investment and implementation of the realized goals.

In order to objectively verify the indicators of efficiency, it was necessary to distinguish the items of commercial profitability and effectiveness not adequate for social

profitability.<sup>1</sup> Such model meets the requirements of foreign investment projects evaluations. However, the overall aim of this paper is to highlight the importance of private capital in the development and transformation of society to a more humane place for the poor and for more efficient functioning of the military under the contemporary economic trends. The growing global markets raise the question of how to involve a great number of people with entrepreneurial skills in the process of eradicating poverty and how to enable efficient functioning of the military under such conditions.

The starting point is in profitable businesses – carefully selected projects, and very often, when it comes to the military, duties to be performed. The most enduring contribution of such projects is to uphold human dignity through the eradication of poverty. It becomes clear that the corporations and entrepreneurs jointly benefit from the social system transformed in such way. The role of the private capital in financing any projects, including military operations, is essential in promoting democracy and support to civil society, as well as understanding of organizational and business processes in a company. The entrepreneurial role in the competence acquisition is *socially determined* (the need for achievement, need for power and need to belong) and determined by certain knowledge and skills managed by entrepreneurs and various command levels of in the military ("mastery" of a specific job or task, development of problem solving skills, tendency towards innovation).

In social sense, entrepreneurs seek a continuous strengthening of specific behavior, that is, the needs of entrepreneurs in terms of interaction, feedback and continuous affiliation. In terms of specific competencies, they seek continuous action that relates to continuous needs for professionalism.<sup>2</sup> The process of acquiring knowledge and skills is a lifelong one and implies careful planning, organization, investment and application in concrete tasks. In that sense, detailed information on educational programs, professional orientation, as well as intensified work on the acquisition of competencies are necessary. It is a long process that requires time and investment in formal and non-formal education. The need for more direct connection between competencies and business objectives in terms of profiling, results in a more efficient economy and application of the acquired knowledge, as well as efficient performance of various types of military operations directly related to the development and education of society as a whole. Enhancement of competences, and knowledge as a shared asset, are certain characteristics of the contemporary and / or digital business and functioning of the military as well as the defense system. The national economy has been transforming in the accordance with the laws of economy (knowledge-based economy).

The growth of the knowledge-based economy is the result of investments in intangible assets, patents, licenses, intellectual property and research activities.<sup>3</sup> The need for investment in lifelong learning is confirmed by researches on the educational needs of selected employers in Serbia through primary data collection from the field. Continuous improvement of the quality of work, lifelong learning, investing in skills and adapting to the contemporary operating environment, benefit both the individual and the entire society. Involved corporations and the military are socially more responsible in selecting proper projects with manifold benefits for the organization and the environment. All these issues are sublimed in *the hypothesis that the*

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<sup>1</sup> "Development of Project Preparation Capacity for Environmental Investments", Anex 3. Task: Project for financial and economic analysis; Methodology for cash flow forecast: Incremental analysis and Project financial viability.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

*economic development is the transformation of social values and functioning of the defense system.* The adopted assumption is the starting point in the coverage of this topic. The structure of the paper consists of theoretical observations assuming the theses on the development as social transformation. This is the basis of the issue of competences for democratic culture focusing on project managers in terms of their professional qualifications against the EU requirements and immediate implications for the Serbian Armed Forces. Deduction leads to the core of this paper - the role of the project manager in the formulation of a funding strategy, the outcome of which is the path to profitable business and achieving the defined objective.

## Development as Transformation of the Society and Defense System (Systems of Military Organizations)

During the long history of political theory, the civil society (*koinonia policy, societas civilis, societe civile, Bürgerlichen gesellschaft, società civile*) and the state (*polis, civitas, etat, staat, stato*) were intertwined and interchangeable terms. The term "civil society" comes from ancient Greece, and it was introduced into public use and the European political thought in the eighteenth century. The theory of civil society was reestablished during the twentieth century through the paradigm of "civil society – state of law" – the rule of law and government control mechanism. Civil society, as a concept in modern theory, is interpreted from two perspectives: economic activity and political importance.

According to Orlovic, S.<sup>4</sup> civil society is defined as an aggregate concept, which implies a specific set of social communication, social relationships and social institutions and values with the following main actors: the citizen, with their civil rights; civil society organizations, associations, movements and institutions as well as everything in modern society covered by the term „the public“. It is believed that the modern civil society is a complex model established in relation to the essential segments of social life (economic, cultural and political), sublimed in the system – the state. The state, as an economic - political community and one of the pillars of the economic system, invests resources in order to achieve general interests of society. This includes the strengthening of the defense system, as an important element in maintaining peace. On this basis, Figure 1 shows the tri-sector division of society

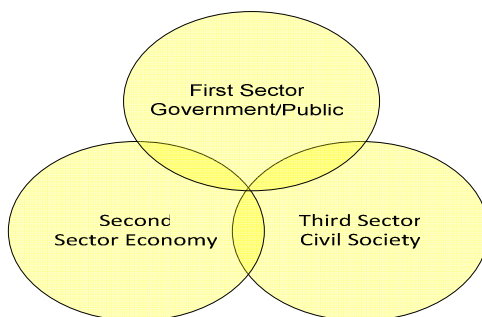


Figure 1 – Tri-sector division of society

<sup>4</sup> Orlovic S., *Demokratska civilnost*, Univerzitet u Beogradu, Fakultet političkih nauka, godišnjak 2007, p. 464 – 469.

The civil society, including the defense system,<sup>5</sup> affirms a number of strategic areas of development<sup>6</sup>, through cash flow used for projects:

1. *Excellence in Science* – funding of most interesting scientific researches;
2. *Industrial Leadership* – support to innovative small and medium enterprises;
3. *Social Challenges* – support to medical research, food industry, transport, energetic etc.

For the analysis and diagnosis of the economy, *Global Competitiveness Index*<sup>7</sup> is a "tool" in the hands of the management. Competitiveness is essential for enhancing management efficiency, and it is divided into three separate economy management groups shown in Figure 2.

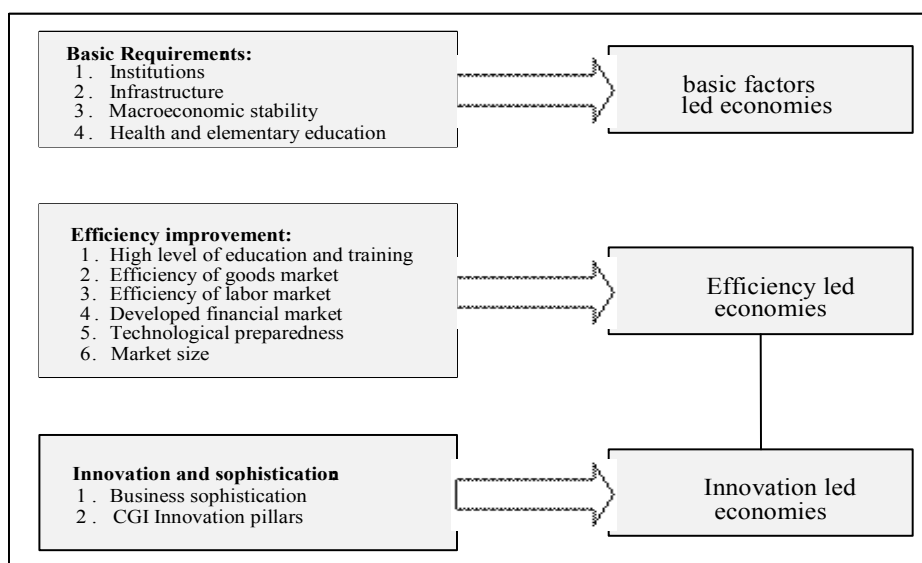


Figure 2 – Competitiveness pillars in three groups<sup>8</sup>

In competition, the management ability is a sine qua non in the creation of products innovation, processes and marketing methods at all levels of economy (public, business and civil sector). Specific expectations pertain to the role of the civil society in the field of innovations, which are the key to business success and survival of any society of capital

<sup>5</sup> Direct inflow of finances through projects increases spending in civil society and employs local resources. According to the Organization for Economic Cooperation and Development – OECD, it is estimated that in 2011 approximately 19,3 billion dollars was directed as development assistance through civil society organizations.

<sup>6</sup> <https://ec.europa.eu/programmes/horizon2020/> The EU Framework Programme for Research and Innovation/

<sup>7</sup> <https://www.weforum.org/>

<sup>8</sup> Ibid.

and efficient functioning of the defense system. The civil sector has a special place in the field of education, especially non-formal education, in support to innovative processes.

Without a quality higher education and training of employees, an economy cannot offer complex products and services, which is also true when it comes to the military and the defense system. Competition in the global markets requires training for new technical and technological challenges. Globalization substantially strengthens links between countries through technology and financial flows (export of products and capital). Technological development becomes the core interest of all countries of the world. Under such altered circumstances, the ideological-political and military complex assumes a new dimension.

Less developed countries can improve their competitiveness through the development of institutions, establishing macroeconomic stability, as well as improving the human capital. Thus, the role of the civil sector in the economic development and the defense system functioning is indisputable, as evidenced by rich societies in which the civil sector has a long tradition and successful functioning of security and defense.

## Competencies for Democratic Culture

In pursuit of improving the competencies, it is necessary to bear in mind three thematic priorities listed in the European Employment Strategy 2020<sup>9</sup> - smart, sustainable and inclusive growth. From the perspective of the individual, improved competencies lead to individual, professional growth and development. Collectively, *smart growth* is exactly what makes these steps, through the promotion of knowledge and innovation. In this, it is realistic to expect an increase in the level of human resources efficiency, compliance with environmental principles, stronger competitiveness, increased quality, which all points to *sustainability*. Cultivating the *involvement* of the individual at all times, (which points both to the digital aspect and the society as a whole), social and territorial cohesion and employment growth can be achieved.

The system set in this way points to the fact that the goals of individuals, organizations and companies are not antagonistic. On the contrary, they are specifically directed towards the development, growth, improvement and cohesion. It is necessary to view the process of competency acquisition and improvement as a lifelong and continuous one, bearing in mind that they are acquired as formal, non-formal, and informal. The complexity of the acquisition and improvement of competencies finally leads to a national model of qualifications, which is integrated into the European Qualifications Framework - EQF.<sup>10</sup>

Qualification, certification, diplomas accompanying the formal education and training are of great importance for individuals, citizens. The objective of the EQF is to accurately describe the competencies so that they can be mapped and integrated from the national level to the European Union level, particularly bearing in mind the aspect of the military that needs to be interoperable in performing various types of operations. In this regard, the focus is on learning outcomes, following the knowledge acquisition (theoretical and

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<sup>9</sup> <http://ec.europa.eu/social/main.jsp?langId=en&catId=101><http://ec.europa.eu/social/main.jsp?catId=101&langId=en>

<sup>10</sup> <http://www.accreditedqualifications.org.uk/european-qualifications-framework-efq.html>

factual) and skills (cognitive – logical, analytical, intuitive and creative thinking, and practical skills). Competencies in the EQF context are described in terms of responsibility and autonomy. Visual representation of the structure of competences in a democratic society is shown in Figure 3.

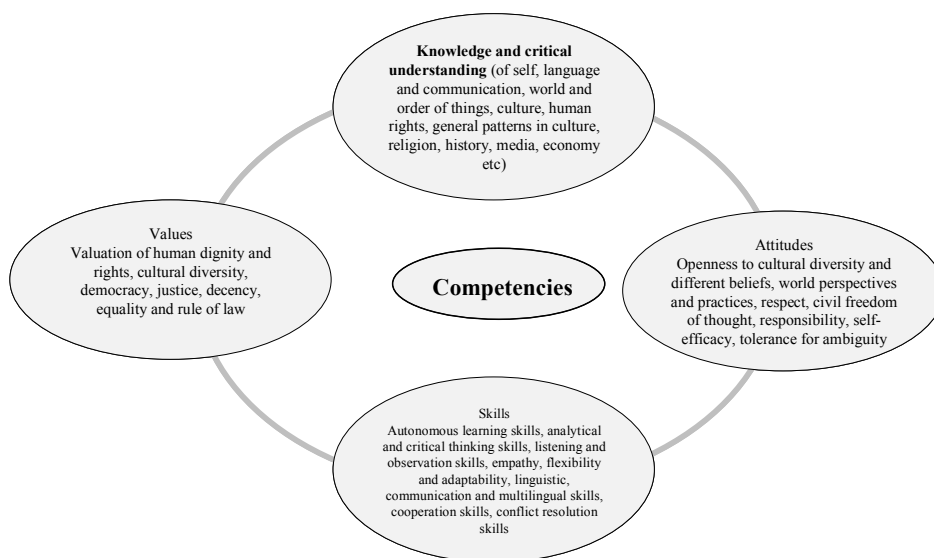


Figure 3 – Competencies for democratic society<sup>11</sup>

**Knowledge and critical understanding** (of self, language and communication, world and order of things, culture, human rights, general patterns in culture, religion, history, media, economy etc.)

Skills are defined as the capacity to perform complex, well-organized milieus based on opinions or behavior, while applying various adaptable ways that would enable reaching specific goals.

Knowledge and critical understanding point to the availability of relevant information, its understanding and application in appropriate contexts. From the aspect of democratic culture, it refers to the need for understanding and exchange of critical information and arguments in an intercultural environment.

Petar Jovanović<sup>12</sup> believes that a modern manager must possess *functional knowledge* - related to planning, organizing, human resources, management and control; *system knowledge* - to analyze, manage a business as a set of parts functioning together in achieving the planned objectives; *knowledge of the situation analysis* – using functional and system knowledge to analyze the specific situation and resolve individual managerial problem.

<sup>11</sup> Fenz A., *ECQA Certified EU Project Manager – Skill Card*, Erasmus + 2014. p. 7-11.

<sup>12</sup> Jovanović P., *Menadžment, Teorija i praksa YUPMA*, Beograd, 2010. p. 234.

As pointed out by Samed Karović<sup>13</sup> for the issues related to military organization systems, particularly in terms of the significance of defense and defense affairs, it can be concluded that despite the fact that there are practical solutions in the field of operation management, there is no complete and comprehensive built system of universal and comprehensive operation at all levels of command, that is, process activities related to the commands. This is due to objective circumstances arising from the need of restructuring military organizations system and the fact the process is still ongoing. The essence of all processes is indeed in their permanent dynamics and changes, thus the military organization and management are also subject to certain processes and changes arising directly from the dynamics of changes in the military organization system. This is also the case for commands that specifically perform all the processes of project management in the field of defense and military operations.

In their considerations on the democratic society, European institutions<sup>14</sup> consider attitude and values in addition to knowledge and skills. Values are defined as beliefs that individuals adhere to and try to observe and most often display a certain consistency about them in the unit of time. The fact is that values encourage motivation and have a certain normative character. In the spirit of democracy, values are important as the impetus to exercise authority not only relying on the information, factual or political components, but also by strengthening the aspects of interaction, negotiation, respect for individuals, diversity, human rights etc.

Attitudes are determined as the reference to a certain object, person, group, institution and event. They are explained through the components: the opinion and subject of the attitude, the emotions towards it, evaluation and tendency of the individual to act in accordance with their opinion. Nikola Rot points out the dimension of attitudes: *attitude direction* – positive or negative attitude towards the subject of the attitude; *complexity of the attitude* – the amount and type of information, emotions and *tendencies towards action* included in the attitude; *extremity* or degree of adherence to an attitude, *compatibility* - when components of an attitude have the same valence, *consistency* - application in all cases where it is applicable, *the power of attitude* and *openness* or intensity of an attitude.<sup>15</sup>

Analysis of competencies is intended for a wide range of users (students, employers, and teachers) to compare qualifications. This is a way to increase mobility in the labor market, both within and between countries, as this facilitates evaluation of the level of qualifications. This enables increasing of balance between the labor supply on the one hand, and the knowledge and skills of the individual, on the other.

The project managers with their set of knowledge and skills acquired after individual learning outcomes in accredited educational institutions enable any activity, project and enterprise, which implies management, planning, organizing, hiring human resources and implementation of control. Their knowledge and skills can be used in projects at local, national and international levels.

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<sup>13</sup> Karović, S., Župac, G., Ristić, V., Vojni menadžment - naučna disciplina nauka o menadžmentu i biznisu ili nauka odbrane, Vojno delo, 2011, vol. 63, br. 2, Beograd, 2011, p. 251-26.

<sup>14</sup> Fenz A., *ECQA Certified EU Project Manager – Skill Card*, Erasmus, 2014. p. 7-11.

<sup>15</sup> Rot, N. *Osnovi socijalne psihologije*, Zavod za udžbenike i nastavna sredstva, Beograd 1987. p. 300-302.

Considering the objectives and functioning of military organization systems, directly arising from the defined mission and tasks of the Armed Forces as a whole, we enter the domain where the achievement of these goals is accompanied by exchange of energy, matter and information between the system and the environment, which is the subject of the work and functioning of the control elements, that is, the task of the project management. The functioning of the military organization systems, regardless of the type of work or the realization of their objectives, primarily relate to their internal environment, that is, maintenance of their internal relations, and relations with the external environment.<sup>16</sup>

## Project Management – Knowledge-based Competency

Given the complexity of contemporary business activities, it is necessary to consider the skills and knowledge required for a person to be able to perform tasks, projects, ventures competently and well. ECQA<sup>17</sup> has specified the strategy in the form of skill cards prescribed for each profession. It is defined on the basis of modular learning elements with specific outcomes and performance criteria. This set of skills is required for the free movement of employees.

Professional knowledge and skills are described<sup>18</sup> through the specific content, domain, professional role; activities performed at work, learning elements, performance, cognitive level, supported by specific documentation on the acquired competences. The skill card of the European Agency for certification and quality also describes the project manager. Table 1 provides an overview of responses to the question: What should the project manager know?

Table 1 – Project manager knowledge overview

PART I INTRODUCTION INTO EU PROJECTS	
EU Structure and institutions	Introduction into EU Programmes
<p><b>Project manager knows:</b></p> <ul style="list-style-type: none"> <li>• main institutions and bodies of the EU</li> <li>• roles of European Parliament, European Council and Commission</li> <li>• roles of Court of Justice, European Central Bank, Court of Auditors and other bodies.</li> <li>• the source of the EU budget and how it is spent.</li> <li>• financial framework 2014-2020.</li> </ul>	<p><b>Project manager is familiar knows:</b></p> <ul style="list-style-type: none"> <li>• how to assign different project ideas to European funding programmes.</li> <li>• the aims and funding rules for EU research and innovation programmes, such as Horizon 2020.</li> <li>• Erasmus+, the EU programme for education, training, youth and sport..</li> <li>• main principles of the Europe 2020 strategy.</li> </ul>

<sup>16</sup> Karović, S., Župac, G., Ristić, V., Vojni menadžment - naučna disciplina nauka o menadžmentu i biznisu ili nauka odbrane, Vojno delo, 2011, vol. 63, br. 2, Beograd, 2011, p. 251-26.

<sup>17</sup> Ibid.

<sup>18</sup> Fenz A., ECQA Certified EU Project Manager – Skill Card, Erasmus, 2014. p. 7-11.



PART II PROJECT OBJECTIVES AND FINANCE		
<b>Start-up and Objectives</b>	<b>Management of Work Packages and Project Results</b>	
<b>Project manager knows:</b> <ul style="list-style-type: none"> <li>• how to select relevant partners for project consortium.</li> <li>• advantages of knowledge sharing and knows how to integrate the know-how of partners.</li> <li>• how to define measurable project objectives.</li> <li>• how to plan the project results.</li> <li>• how to align project objectives to programme objectives and organizational objectives.</li> </ul>	<b>Project manager is knows:</b> <ul style="list-style-type: none"> <li>• the definition of work packages in EU projects.</li> <li>• how to define inputs and outputs of work packages.</li> <li>• how to accept the responsibilities for work packages.</li> <li>• how to define the process to integrate the project results.</li> <li>• how to develop the project plan and how to set key tasks.</li> </ul>	
<b>Finance Management</b>	<b>Contract Management</b>	
<b>Project manager knows:</b> <ul style="list-style-type: none"> <li>• the project budget structure and types of eligible and non-eligible costs.</li> <li>• how to apply different cost categories in EU-funded projects.</li> <li>• understands payment models between EU Authorities, coordinators and partners.</li> <li>• how to define and manage the project budget and evidences of budget usage..</li> <li>• how to manage budget changes and how to calculate the final EU funding.</li> </ul>	<b>Project manager:</b> <ul style="list-style-type: none"> <li>• understands the content of the contract between EU Authority and the consortium.</li> <li>• understands the purpose and the process of the legal and financial viability checks..</li> <li>• knows how to run contract negotiations with the EU Authorities.</li> <li>• knows how to develop and negotiate contracts with project partners.</li> <li>• knows how to follow-up a contract throughout the project and how to manage amendments.</li> </ul>	
PART III COOPERATION		
<b>Communication and Team Management</b>	<b>Exploitation and Sustainability</b>	<b>Reporting</b>
<b>Project manager:</b> <ul style="list-style-type: none"> <li>• understands communication principles between EU Authorities and consortium.</li> <li>• knows how to establish communication models within the project consortium.</li> <li>• understands importance and principles of document management and IT infrastructure.</li> <li>• knows how to organize and manage project meetings and other communication events.</li> <li>• is aware of cultural differences in international cooperation.</li> </ul>	<b>Project manager:</b> <ul style="list-style-type: none"> <li>• understands the concept and importance of dissemination activities.</li> <li>• defines a dissemination plan and strategy</li> <li>• understands the importance of intellectual property rights.</li> <li>• knows how to identify relevant models for exploitation of project results.</li> <li>• knows how to agree on exploitation and sustainability plan or agreement.</li> </ul>	<b>Project manager:</b> <ul style="list-style-type: none"> <li>• understands the reporting models for specific EU programmes.</li> <li>• knows what information and evidences are needed for financial and content reporting.</li> <li>• knows how to prepare content, status and financial reports to EU.</li> <li>• knows how to establish reporting models within consortium.</li> <li>• knows how to manage communication with EU authorities in relation to reporting.</li> </ul>

PART IV QUALITY MANAGEMENT	
Quality Planning and Control	Risk Management
<p><b>Project manager:</b></p> <ul style="list-style-type: none"> <li>• understands the importance and characteristics of quality in EU projects.</li> <li>• understands the responsibilities of partners in quality management.</li> <li>• knows how to plan quality of processes and results in EU projects.</li> <li>• understands why the quality assurance and control is needed.</li> <li>• knows how to manage internal and external reviews, evaluations and audits of EU projects.</li> </ul>	<p><b>Project manager:</b></p> <ul style="list-style-type: none"> <li>• understands the most relevant risks in EU projects.</li> <li>• understands what risk management is and how it is applied in European Projects.</li> <li>• understands the responsibilities for risk management and how to respond to different risks.</li> <li>• knows to apply risk management activities and tools.</li> <li>• knows how to define the different types of conflicts and how to manage them.</li> </ul>

In order to meet the requirements defined by *the Skill Card*, a project manager must be familiar with the issues of financial management, contracts, communication skills and team management for the purpose of exploitation and sustainability of the project. A project manager also must be familiar with the standards of reporting, quality management and project risks. These are very rigorous requirements and define a project manager in the wider context as one of the initial factors of social transformation manifested through various dimensions of the project. This is also a question that permeates all elements of operations, as projects implemented by the military. Essentially, the aforementioned properties of project management directly affect the characteristics of successful command and control.

The modern concept assumes that the project must be environmentally sustainable in order to be socially acceptable. From an economic point of view, the project should improve the profitability of a company and contribute to the socio-economic development. In addition, a project concept is preferably based on ethical values and future voluntary actions. If military operations are observed as projects, they essentially match the aforementioned characteristics, and the government stands behind them.

Thus, the benefits of competent project management, including commands at various levels of military organization systems, are manifold, not only for the participants in the project, but also beyond, for the community as a whole. The role of the project manager is particularly important in creating a favorable climate for investment in large and risky projects that give impetus to the development of the entire economy with positive implications for improving the quality of life, that is, living standards and the achievement of specific objectives through the implementation of the project.

## Role of Project Management in Formulation of Investment Strategy

Formulating investment strategy is the responsibility of project management, and in the defense system and the Serbian Armed Forces it is the responsibility of commands at various levels. This is the process of identifying the general guidelines for the growth

and development of enterprises through capital investments and successful performance of various missions. Since at this stage of the strategic orientation not all of the potential projects can be identified, the sufficient condition is to identify key success factors of those businesses that offer expected strategic benefits and profits. In formulating effective investment strategies two basic types of strategies are most commonly used:

- *Portfolio Strategy*, which identifies strategic business areas that offer a variety of profitable opportunities and / or require different competitive approaches.
- *Competitive Strategy*, defining the different approaches that the company intends to use when investing in selected strategic business areas.<sup>19</sup>

The process of formulating investment strategy is based on projections of future successful condition, expected growth and profitability in individual strategic business areas (Figure 4). Simultaneous identification of the existing situation and development objectives of the company is carried out. On this basis, the attractiveness of individual strategic business areas, as well as the target strategy is determined.

The evaluation criteria of the strategic business areas are: a) the expected growth rates of return on invested capital (profitability) and b) future successful status of assets (funds invested) and its funding sources. This is the premise on which the assessment of investment opportunities and investment strategy is based, and these are the starting points in a company's action in selected strategic business areas. Assumptions of this kind provide a competitive advantage in target market segments.

Another project management activity is the strategy implementation. The defined implementation strategy represents a platform for decision-making in the investment process. The system of investment decision-making takes place at several levels: (a) project implementation, (b) preliminary project selection, (c) project formulation, and (d) the decision on the project. Figure 4 provides illustration of the described decision making process.

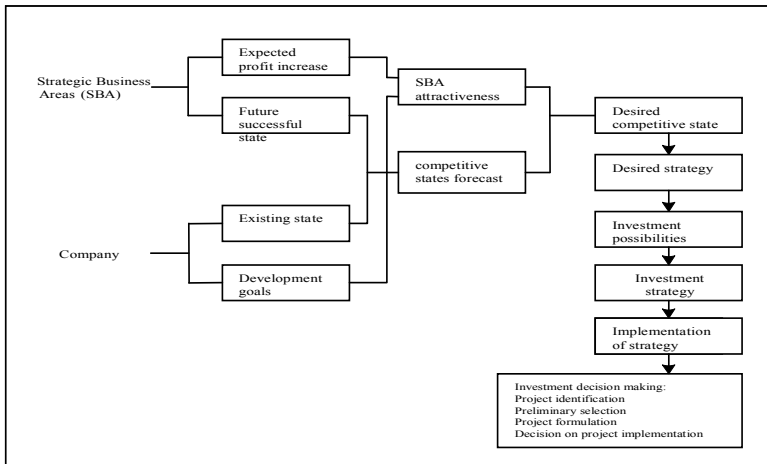


Figure 4 – Formulating investment strategy<sup>20</sup>

<sup>19</sup> In the case of military organization systems we talk about operations performed within a specific mission and it depends on the defined goal.

The area of capital budgeting provides enough space for overcoming problems related to project risk in management options based on selected strategic business areas. In formulating the investment strategy, project managers have the appropriate tools in project management, such as the portfolio strategy. The portfolio strategy provides the managers with realistic options in the field of project evaluation, in relation to their share in the overall risk of the company, and thus in all phases of military operations.

## Private Capital as the Key Element of Development

The system and the funding mechanism of economic growth is the foundation of any economy and development policy. Modern economies are more or less open to the world market. Complementarity and interdependence are increasing. The economy openness imposes the need of mastering the nature of financial relationships on a global level. Accordingly, it is necessary to understand the division of the project financing models. There are four main cases of project financing categorized in accordance with specific characteristics inherent in each model. All the models comply with the definition of capital calculation required for assessing the eligibility of projects. These four main cases are:

1. No domestic alternative: 100% foreign funding
2. No domestic alternative: partial funding from domestic sources
3. Alternative – domestic investment: 100% foreign funding
4. Alternative - domestic investment: partial funding from domestic sources.

The presented models of project financing have a certain degree of financial flexibility. One of the important issues of corporate finance is the extent to which a company's choice of capital structure determines its value. The concept of the project financing is linked to the choice of capital structure, which undoubtedly affects the value of the company capital. This question, given its importance, disciplines project managers of the company. They have to develop the efficiency of the project to the extent that allows creation of the cash flow (internally generated funds) required for its sustainability, as well as to fund other projects, bypassing the rules of the capital market. Military organization systems present a specific case that can be perceived as combination of the aforementioned cases. In that, it should be stressed that the decisions on funding certain military complexes – the defense industry, are based on certain economic – political interests. The political aspect of funding implies a political authorization for spending and it is an expression of informal relations between the military and the defense industry, which supplies the military.

Alternative models of financing (equity financing) relate to financing through equity and essentially mean a process of raising capital by selling stocks or shares of a company to investors, in order to position the company for further growth and development. It is important to distinguish the activities because of the know-how and management skills that cannot be undertaken in the absence of private foreign investors and the investors who are available for domestic alternatives. Often, know-how and

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<sup>20</sup> Lečić R., *Osnove finansija*, VŠPM, Beograd, 2009, p.134.

management skills have to be bought, which is not always possible. It should be noted that domestic alternatives to a project significantly influence the assessment of private foreign investments. In this case, one must distinguish between the evaluation of the project and evaluation of the way the project is financed. The described models of financing (equity based models - seed, startup, business angel, venture capital and private equity), which are based on ownership of capital, have not been developed and legally recognized in many countries. In addition, the efforts to establish those regulations and mechanisms are not visible enough.

However, it is necessary to add another form of foreign investment to the model of funding a specific project, which, as a rule, covers all phases: design, implementation, exploitation for contracted period and its transfer to the ownership of the other contracting party (the investor). This joint venture of the financial institution (bank) and the investor (sponsor) is known as *project financing*. This method of funding the project came about as a result of the global crisis of the banking sector. Therefore, project financing, as off-balance-sheet financing, that is, funding the project as *an independent economic entity* (legal entity), is considered to be a modern banking product. From a legal standpoint, in project financing both parties can be private law entities, in contrast to concessions, where one party is always a public legal entity.

Investment decisions should be based on appropriate methods of project evaluation, in order to select a project that shows the best referential values of the effective use of invested funds. The instrument of policy of investing in projects is *the capital investment plan* (CIP). It is an integral part of the assessment methodology under which the real value of an asset (or company) equals the value of expected discounted future net cash income. The goal of CIP is to select the project with the highest expected discounted future net cash income. Of course, in the case of military operations some alternatives that will ensure reaching the goal will be considered.

*Discounted cash flow* (DCF), as well as a kind of analysis is any method of evaluation and selection of investment projects which adjusts cash flows to the time value of money. Operational procedures for evaluation of the project may vary, but assessment methodology for all financing projects is the same. Methodology to achieve full coverage of the financial and economic analysis is based on the cash flow forecast. One may conclude that foreign aid as a means of financing investment activities is superior to other financing models. Appropriate level at which this question is raised is the macro-economic level rather than the project level.

The financial and economic analysis model includes an evaluation of commercial and social efficiency of the project. Therefore, the evaluation of the project is structured as:

- Evaluation of the financial efficiency of the project,
- Evaluating the economic efficiency of the project.

Financial and economic analysis verifies the parameters for the calculation of social cost – benefit analysis (reflecting the economic policy of the country in which the investment is made) and the commercial cost – benefit analysis (acceptance criteria of companies whose basic aim is maximization of profit). Accordingly, an overview of the basic parameters for the analysis of discounted cash flows of the project is presented in Table 2.

Table 2 – Overview of basic parameters of project discounted cash flows analysis

Evaluation elements / Parameters	Financial (commercial ) efficiency of the project	Economic (social) efficiency of the project
Project effect evaluation criteria	Project effect on surplus products that remain at the investor's disposal	Project effect on all goals of socio-economic development
Scope of the effect	Immediate project effects.	Direct and indirect project effects
Project effects evaluation costs	project input /output market costs	Corrected project input /output costs
Investment decision-maker time preferences	Individual time preferences of the investor	Social time preferences
Term that expresses project financial and economic analysis	Project profit – if it does not disrupt the investor's liquidity the project can be feasible	Project benefits (measurable and immeasurable) – if it contributes to the goals of national economy , the project can be feasible

Accordingly, an evaluation of project investment efficiency includes:

- a) *Drafting a project investment proposal;*
- b) *Assessment of future cash flows;*
- c) *Selection of the project from the standpoint of maximizing the value for the owners of the invested capital, which means that the selected project is the one with the highest quantum of present value (PV).*

Methods for evaluation of the project are:

1. *Pay Back Period (PBP)* – a simple method.
2. *Internal Rate of Return (IRR)* – a complex DCF technique defined as the discount rate that equates PV of future net cash flows of the project with the initial cash expenditure for the project.
3. *Net Present Value (NPV)* – dynamic method – a complex DCF technique that represents the difference between PV of net cash flows from the project and the initial money expenditure for the project.

The criterion often applied to private enterprise is the return period of the invested capital. In its simplest version, this criterion is assessed based on the number of years required to recover the initial investment. The decision rule is to choose potential projects with the shortest payback periods among all projects. Under certain circumstances, this decision rule can provide accurate answers. In general, although it gives a rough indication of the project liquidity, the criterion is a weak measure of profitability because:

1. *It ignores cash flows that occur after the expiry of the payback period,*
2. *Does not take into account the time value of money and*
3. *Has a rough acceptance criteria, i.e. subjectively determined point of rejection.*

However, a problem can arise when ranking projects based on IRR and NPV method. Important question: what can lead to conflict in the ranking? *When two or more projects mutually exclusive, so that only one can be chosen, ranking the projects based*

on the method of IRR and NPV may give conflicting results. The conflict in the ranking is the result of three project differences:

- (1) The scope of investment;
- (2) The form of cash flow;
- (3) The life of a project.

*Proposal: ranking by NPV can lead to the correct choice; by applying the NPV, the project expected to have the largest increase in company value will be chosen.*

$$\text{NPV formula is: } NPV = \sum \frac{C_i}{(1+r)^i}$$

where

NPV = present value of future net cash flows

C<sub>i</sub> = net cash flow (+ or -) in the period *t*

r = discount rate or capital cost

i = economic life of the project

IRR function is based on the *net present value* function of the project. It can be considered a special case of NPV, where the calculated rate of return is the interest rate that corresponds to 0 (zero) of the net present value.

NPV (IRR (values), values) = 0

When all negative flows appear successively earlier than all positive cash flows, or when a series of cash flows of a given project contains only one negative cash flow, the IRR function returns a single value. Most capital investment projects begin with large negative cash flow (initial investment) followed by a series of positive cash flows and therefore they have the same IRR value. However, sometimes there are several acceptable IRR values, and sometimes there is none.

The investment project is a controlled process of problem identification, strengths or guidelines, which defines the objectives, describes the current situation and successful outcomes, and evaluates the extent of costs and benefits associated with a certain way of solving a problem. Description of the financial and economic indicators for evaluating the investment efficiency is shown in Table 3.

Table 3 – Description of the financial and economic indicators for evaluating the efficiency of investment

Incremental analysis	Integrated analysis	Socio-economic analysis/
<p><b>1. Procedures</b></p> <ul style="list-style-type: none"> <li>▪ Projecting cash flow</li> <li>▪ Only financial strength of the project is evaluated</li> <li>▪ Evaluation of the project financial efficiency</li> </ul>	<p><b>1. Procedures</b></p> <ul style="list-style-type: none"> <li>▪ Projecting cash flow for assessing the profitability of the investor's own funds</li> <li>▪ Evaluation of the project, i.e. its reproductive effect on the financial power of the investor</li> </ul>	<p><b>1. Procedures</b></p> <ul style="list-style-type: none"> <li>▪ Projecting cash flow (cash flow modified by inflow of other profits)</li> <li>▪ Assessment of the project economic efficiency, which indicates contribution to the national economy</li> <li>▪ Cost - benefit analysis is an instrument of shaping and managing national economic policies</li> <li>▪ Project evaluation                             <ul style="list-style-type: none"> <li>- Effect on company,</li> <li>- Effect on society</li> <li>- Project effect on limited project area</li> </ul> </li> </ul>

Incremental analysis	Integrated analysis	Socio-economic analysis/
<p><b>2. Procedures</b></p> <ul style="list-style-type: none"> <li>■ Projecting cash flow (cash flow modified by inflow of other profits)</li> <li>■ Assessment of the project economic efficiency, which indicates contribution to the national economy</li> <li>■ Cost - benefit analysis is an instrument of shaping and managing national economic policies</li> <li>■ Project evaluation                             <ul style="list-style-type: none"> <li>- Effect on company,</li> <li>- Effect on society</li> <li>- Project effect on limited project area</li> </ul> </li> </ul>	<p><b>2. Evaluation of investment efficiency – profitability of the investor’s funds</b></p> <ul style="list-style-type: none"> <li>■ Discounted method is applied</li> </ul> <p>Interpretation of the result using standard profitability indicators – Net present value and Internal rate of return (NPV and IRR)</p>	<p><b>2. Cost –benefit analysis uses three methods of comparison of costs and profits (economic indicators) :</b></p> <ul style="list-style-type: none"> <li>■ NPVB (Present value of net Benefits),</li> <li>■ ERR (Rate of Return)</li> <li>■ BCR (Benefit-Cost Ratio)</li> </ul>
<p><b>3. Investment evaluation criteria</b></p> <ul style="list-style-type: none"> <li>■ NPV:                             <ul style="list-style-type: none"> <li>- Absolute measure of profit, i.e. effect on material strength of the project</li> <li>- project with the best annual balance of net cash is selected</li> <li>- used for comparison of two or more projects or variants of a project</li> <li>- Suitable as a criterion in case of mutually exclusive projects<sup>21</sup></li> </ul> </li> <li>■ IRR :                             <ul style="list-style-type: none"> <li>- Relative measure of the project efficiency</li> <li>- Information on the average rate of cumulative</li> <li>- Provides information on maximum acceptable real interest rate on the total funds</li> <li>- Criteria for ranking projects according to cost-effectiveness</li> <li>- it is often the target rate for the project effectiveness</li> <li>- not applied to ranking of mutually exclusive projects</li> </ul> </li> </ul>	<p><b>3. Evaluation criteria:</b></p> <ul style="list-style-type: none"> <li>■ NPV:                             <ul style="list-style-type: none"> <li>- Measure of the impact on the economic strength of the project</li> <li>- the project with the highest NPV is selected</li> <li>- used for comparison of two or more projects or variants of a project</li> <li>- Suitable as a criterion in case of mutually exclusive projects</li> </ul> </li> <li>■ IRR:                             <ul style="list-style-type: none"> <li>- Indicator of the average annual rate of the investor’s funds accumulation</li> <li>- Criteria for ranking projects according to cost-effectiveness</li> <li>- has the role of the required rate of project effectiveness</li> <li>- Not applicable as a selection criterion for mutually exclusive projects</li> </ul> </li> </ul>	<p><b>3. Cost –benefit analysis uses methods of cost comparison with inflows (economic indicators) :</b></p> <ul style="list-style-type: none"> <li>■ NPVB (Present value of net Benefits),</li> <li>■ ERR (Rate of Return)</li> <li>■ BCR (Benefit-Cost Ratio)</li> </ul> <p><b>4. Decision making rule:</b></p> <ul style="list-style-type: none"> <li>■ Present value of net benefits (NPVB): (NPV): first select the project with the highest NPV, then successively follow the projects in descending order of inflows</li> <li>■ Rate of Return (ERR): select the project with the highest rate of return, then follow projects successively until the rate of return equals the ex ante determined social discount rate;</li> <li>■ Benefit-Cost Ratio (BCR): select project with the highest B / C, and then follow the projects in descending order until the B / C or the budget is exhausted;                             <ul style="list-style-type: none"> <li>– BCR is appropriate when budget is restricted;</li> <li>– BCR focuses on profit per consumed goods.</li> </ul> </li> </ul>

<sup>21</sup> Mutually exclusive projects are alternative project proposals that cannot be implemented at the same time; if one of them is being implemented, the others cannot. Proposals may be mutually exclusive because they require a different start of the same project, because of limited available funds or due to the fact that if one is being implemented, the others are not necessary.



The described basics of the discounted cash flow analysis are inevitable in selecting a good project. It is imperative to analyze the profitability of the proposed project prior to its implementation. It is important to point out that investing in projects should be carried out on the basis of surveyed economic factors, in order to select the most suitable project for investment, taking into account all other goals that can be achieved. This is also a requirement in the execution of military operations as a key element of their implementation. The general position is that both private and foreign investors are looking for quality projects for investing their capital, taking into account the administrative compliance, eligibility of the potential investor, the evaluation of project quality and financial evaluation of the project.

## Civil Society Institutions and Politics as a Condition for Foreign Investment

In considering the relationship between democracy and civil society, the democratic potential of civil society should be taken into account. The concept of civil society has always had a strong democratic impulse. Among the democratic functions of a civil society, the building of a democratic political culture is the one that stands out. By affirming the democratic values, a civil society creates conditions for the democratic functioning of the government institutions. Today, various policies are failing to improve the social and economic status of a large number of citizens. On the contrary, they can lead to poverty and social exclusion because they define the objectives and means of shaping society in a way that leaves out certain groups in our society. The following key aspects of policies influencing the development are recognized:

- *Availability of finance and access to capital*; aimed at creating a new generation of entrepreneurs and businesses.

- *Relationship of the education system and entrepreneurship*; training of young generation for critical thinking, identifying and creating new economic value.

- *Development of entrepreneurial culture*; government support and partnership in promoting and stimulating entrepreneurial culture that leads to inclusion in economic processes.

Relationship between the access to economic development and social transformation becomes apparent and is shown in Figure 5.<sup>22</sup>

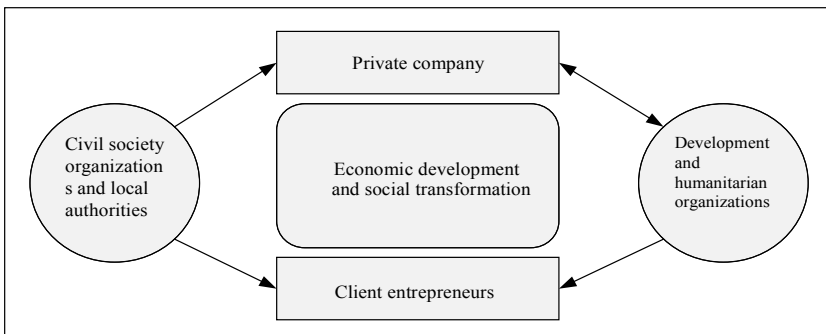


Figure 5 – Relationship between economic development and social transformation

<sup>22</sup> Prahalad, C.K., *The fortune at the bottom of the pyramid*, Pearson Education Inc. Publishing as Wharton Scool Publishing, 2005, p.2.

One of the dimensions of eligibility and the criteria of concrete implementation of the model of private financiers is the institution of civil society and politics. Institutions may lead to poverty and social exclusion of individuals and groups due to a selective approach and inefficient functioning. For these reasons, foreign private capital expects clear agreements:

- Can the project be implemented within the legal framework and how the project is resistant to politics?
- Can the government, private sector and other partners obtain all necessary approvals and are the approvals applicable?
- Is the communication structure adequate?
- Can investors count on reliable government and civil center – service when investing in digital technology?<sup>23</sup>

Figure 6 shows the transformation of institutional capacities in the spirit of democratic tradition.<sup>24</sup>

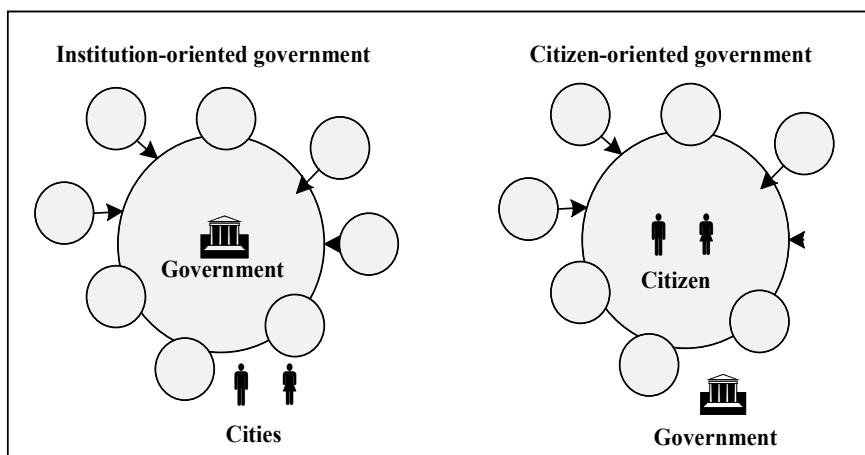


Figure 6 – Transformation of society into citizen-oriented government

Contemporary business is a major challenge. One of the important goals is to reduce corruption in public education by introducing accountability for efficient operation of local governments and other significant actors in the society. The condition for that is building of institutional framework, that is, the development of stable institutions through the following domains:

- *Social* (human resource development, health, education, social cohesion)
- *Economic* (competitive market economy and balanced economic growth based on knowledge, development of infrastructure and
- *Environmental protection*.

<sup>23</sup> Ibid., p. 99–112.

<sup>24</sup> Ibid., p. 84.

Creating such environment greatly contributes to the implementation of the project at full capacity, as well as reducing or eliminating risk. Corruption in government, as a political risk, can seriously disrupt the project. Political risks primarily occur due to company externalization or use of foreign jurisdictions and foreign accounts for assets. Also, legal risks (changes in laws that regulate the elements of the agreement and their status) can be a source of negative impact on the financial performance of the project. Thus, through investing in skills, social structures influence the shaping of the economic environment, as well as the focus on investment in certain areas of research and development of human action. Major projects, including the military, require the involvement of the Government - the host country, which is often the guarantor (provides government guarantees to repay the debt in case of political crisis) and implements appropriate legal reforms. Along with this, the society must focus on raising the public awareness and stronger public participation in decision-making.

## Repercussions of the Civil Society Development on Changes of the Military Aspects

The military is a rather closed system and certain processes that occur in the society are actually the last to be implemented in the military. This clearly points out that the processes of development and certain changes in the society are slower in the military. However, if we take into account the economic developments in the country, we have a different situation. Any change in the military requires future leaders capable of carrying out certain transformations. As pointed out by Nedžad Imamovic, " ... limited financial resources are critical for a high level of capabilities, because the military should be transformed into a highly capable and efficient force, so that the one who leads that department should also take the lead in the reform activities."<sup>25</sup>

As pointed out by the same author, "... leadership in the military should especially emphasize the development of training and education of individuals with the aim of having a steadily growing number of trained personnel capable of managing costs"<sup>26</sup>. This is directly connected with the commands that directly make decisions and participate in the process of operational planning of various types of operations, where the economic aspect of costs comes to the fore.

In the present moment it is inconceivable to plan any type of operation without considering the economic implications on the military and the society as a whole, which is the basis for engaging in such risky processes, thus opening the door to the other processes that follow such complex projects. In that sense, development of the control functions and risk monitoring are integral parts of project management in the military. This clearly emphasizes the aspect of real economic benefits and feasibility of all projects, including the operations of any kind.

The implications of project management in the military should be also viewed from the perspective of the legal framework governing a number of issues regarding the use of the military and performing of various operations. What characterizes the military as the system is a number of normatively formulated things, so that project management does not have a lot

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<sup>25</sup> Imamović, N.: Uvođenje finansijskog menadžmenta troškova u vojsci, Vojno delo, zima/2013, Beograd, 2013.

<sup>26</sup> Ibid.

of freedom to deviate from the defined standards. It is especially the characteristic in the sphere of legal basis, while the freedom of commands (project management) exists in planning and decision-making process within the legally defined use of the military.

According to Rade Žugić, "the state and development of the defense system is directly affected by economic power of the country and its development. The expressed value of economic power and the potential for financing the defense is the available budget. It is the basis and framework for determining the defense policy and its development, as well as for adoption of regulatory, planning and other systemic and operational documents, which will, as much as it is possible, eliminate the discrepancy between the increasingly growing needs required for the defense of the country and limited material and financial possibilities - to ensure a stable system of defense and efficient use of limited resources".<sup>27</sup> This clearly highlights the framework and functioning of project management in the military, practically creating conditions for the democratic control of the military, which is basically the central issue of how the military works. It is also the key issue when it comes to the implications of the development of the economy and civil society on defense and functioning of the military under such conditions.

In the same article, the author emphasizes that "the Ministry of Defense and the Armed Forces, as the largest budget beneficiaries are obliged to spend the available funds for the functional purposes legally, purposefully, cost-effectively and efficiently, which is the basis and precondition for achieving the optimal operating model, which provides maximum combat capability, along with a more rational spending".<sup>28</sup> All this points out that the project management assumes a specific role, moving within the projected framework and its practical success depends on good organization that will "... ensure the implementation and enforcement of the adopted measures and activities at all levels, which, based on the principles of the defined responsibilities and accountability, will ensure that the available budget resources in a given period and for specific operations are used for the most important national priorities."<sup>29</sup> It is also the key issue of implications of the civil society on defense activities and the use of the military, and therefore also on performing different types of operations within of the projected missions of the Serbian Armed Forces. This is the way to ensure the implementation of planned and adopted economic measures and processes that are controlled and directed to be effective and realistic, and to ensure successful project management in the context of the objectives, which, ultimately, makes its effectiveness.

## Conclusions

The globalization of the world markets leads to increasing importance of the project manager competencies. Results of long education of project managers are consistent with the description of the professional profile of a project manager. Project managers can employ their skills at local, national and international labor markets. Compliance with

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<sup>27</sup> Žugić, R., *Planiranje troškova operacije*, (članak) Vojno delo, zima/2014, Beograd, 2014, p. 74.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

EU framework competences provides an opportunity for mobility, flexibility and obliges the project manager for further training through "learning organizations", various associations and/or other forms of lifelong learning. The complexity of lifelong learning relates to the tendency of its integration with new technologies and close connection with the labor market.

Well-structured system, accreditation and standardization lead to planned outcomes and competencies, which are in line with national and EU framework of competencies and qualifications.

The system organized in such way "opens the door" to mobility and flexibility, and the fact that individual career paths of education lead to the applicability of knowledge in the global environment. Thus, also the commands at various levels can understand the challenges of a complex operating environment. The macroeconomic principles within individual nations are, often divergent because the history and institutions modify the way of interpretation of these principles.

The international integration of the economy is almost nowhere as important as it is Serbia. The implications of the widespread economic crisis have been drastic, especially on the fundamental activities of acquiring and efficient use of capital and investment in innovation. Poverty, as a growing phenomenon, raises the question: how to restore the dignity of the common man? The answer lies in the profits, because only the profit growth can eradicate unemployment.

Resolution of this issue is correlated with a more efficient implementation of corporate management standards, where tasks of the project manager are directly linked to the core of good practices of corporate management, and in the context of military organizations systems with efficient planning and execution of various types of operations and development of new technologies. In this sense, democratic processes are seen as a realistic assumption for the creation of a favorable (or more favorable) framework for the development of free market economy and economic growth. These are mutually processes, because economic development is a good basis for strengthening of democracy and the protection of private property. This in turn encourages investors to invest in projects, and directs governments toward more responsible conduct. Therefore, it is necessary to nurture democratically oriented teachers/trainers characterized by respect for other people's opinions, attitudes, and visions. Respect for individuality, personalization, knowledge sharing, leads to cooperation, teamwork in the classroom and the group dynamic that encourages social cohesion.

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# MODELLING OF ACCOUNTING INFORMATION SYSTEM FOR MILITARY MEDICAL INSTITUTIONS

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The complexity of the accounting system as the subsystem of management information system requires the continuous arrival of different types of data in different intervals which leads to an increase in complexity during its processing and presentation to management. Promoting the work and operations of military medical institutions requires the use of just such modern accounting information systems. Methods – Queuing system is used in this paper as the basis for positioning of information which needs to be processed within the accounting process, by adhering to certain limitations which are imposed by the specificity of the military medical system which is established. Conclusion – Basis of this information system is comprised of three subsystems, which are financial accounting, managerial accounting and cost accounting. Conditioning processing of data in the accounting process, adhering to accounting principles, primarily the principle of realization, it is very significant that this system supports information which is objectified in the form of accounting documents, so it can be processed and given to its users in military medical institutions.

Key words: *modelling, accounting, information system, queuing system*

## Introduction

Business records are kept in order to cover all of the needs of individual subsystems of companies i.e. for their guidance and rational spending in accounting information system for military medical institutions. In contemporary conditions, despite the obviously significant results which are achieved by accounting information systems in for military medical institutions, efficiency problems are more pronounced. They are manifested in inhomogeneity and disintegration of the system, mostly from the perspective of untimely information, based on which decisions from management are made.

By establishing a unique accounting information system within a military medical institution, a sound basis for bringing timely information for managers is created. It is important to establish quantitative in addition to the qualitative dimension of this system, which is reflected in the ability to bring in focus the accounting process i.e. the processing system which is called bookkeeping, depending on the size of the set of accounting data which need to be processed.

It is very important, by cognition of elements of this system by applying quantitative methods, for the queuing system in this case to show the possibility to process certain amount of data within the accounting flow which would result in timely and high quality information which would be used in the decision-making process.

## Description of the Queuing System

Today the queuing systems have wide applications[1], and are used to automate the process of operating calculation [2] and distribution of limited (and highly variable in time) resources among many consumers[3]. The system performs servicing of stochastic flow requirements, which includes data on the type and amount of required resources,  $\beta$  needed resource, as well as determining the ability to meet every requirement of the system in military medical institutions [4].

One of the basic tasks that arises in the design of such queuing systems, is finding optimal management [5] by allocation of resources on stochastic [6] flow requirements. Finding the optimal discipline of queuing [7] is of great importance, as it maximizes revenue from servicing requests of military medical institutions [8].

## Setting of the Problem and Marketing

Let us assume that in the servicing accounting system[9], which is comprised of  $m$  amount of business records, that are  $\alpha_1, \alpha_2, \dots, \alpha_m$  units respectively, arrives an  $n$  amount of independent stationary input-output accounting data[10] of Poisson's flow of demands, with parameters  $\lambda_1, \lambda_2, \dots, \lambda_n$ .

The complexity of the accounting system requires the arrival of different types of information [11] at different time intervals, which complicates the problem.

If  $\beta_{ij}$  - is the number of units of  $j$  type, which requires the request of  $i$  type ( $i = \overline{1, n}$ ;  $j = \overline{1, m}$ ); in that way, the request of  $i$  type requires the resources which, in quantitative terms[12], are written in the following way:  $\beta_i = \beta_{i_1}, \beta_{i_2}, \beta_{i_m}$

Such needs are, either met or not met in full (partially met demands are excluded) [13]. In case of servicing the requests  $i$  type, the system receives revenue  $C_i$ . The task consists in finding the optimal management of resource allocation[14], which maximizes the expected usefulness of accounting information[15] from servicing requests during a given time interval  $T$ .



## Model of the Solution to the Problem

Static algorithm [16] of resource allocation assumes processing of accounting data in chronological order of requests with the principle of “first came – first served”. (Figure 1)

In solving the task, we will limit to the case when  $\alpha_1 = \alpha_2 = N$  and the matrix

$$\|\beta_{ij}\| = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \end{bmatrix}$$

which has significant practical applications.

We will show the assumption of the solution of three parts of the accounting information system for military medical institutions, financial, managerial and cost accounting [17].

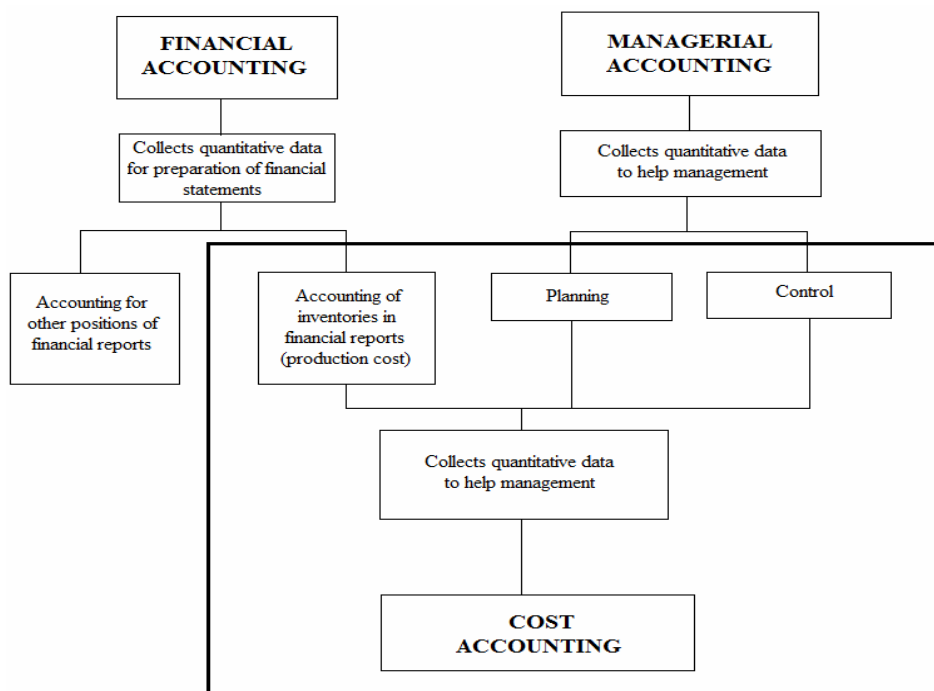


Figure 1 – Accounting system

If  $P_{ijk}(t)$  is the probability that, in the moment  $t$ , exactly  $i$  requests of the first flow  $i = \overline{1, N}$ ,  $j$  requests of the second flow  $j = \overline{1, N}$  and  $k$  requests of the third flow  $k = \overline{1, N}$  are satisfied. Let's show the state of the system in the form of the following

sets:  $i + j < N, k + j < N$ ;  $i + j < N, k + j = N$ ;  $i + j = N, k + j < N$ ;  
 $i + j = N, k + j = N$ ;

When  $i + j < N, k + j < N$ ; , due to independence of handling requests of different flows, we have

$$P_{ijk}(t) = \frac{\lambda_1^i \lambda_2^j \lambda_3^k}{i! j! k!} t^{(i+j+k)} e^{-\lambda_1} \tag{1}$$

Analogously when,  $i + j < N, k + j = N$ ; we get

$$P_{ijk}(t) = \frac{\lambda_1^i}{i!} e^{-\lambda_1^i} P_{jk}(t) \tag{2}$$

where  $P_{jk}(t)$  is the probability that, in the moment  $t$ , exactly  $j$  requests of the second flow are satisfied, and  $k$  requests of the third flow (provided that  $k + j = N$ ). The probabilities of  $P_{jk}(t)$  satisfy the following system of differential equations:

$$\frac{dP_{jk}(t)}{dt} = \lambda_2 P_{j-1,k}(t) + \lambda_3 P_{j,k-1}(t)$$

Denote by

$$\hat{P}(s) = s \int_0^\infty P(t) e^{-st} dt$$

Then

$$\hat{P}_{jk}(s) = \frac{\lambda_2^j \lambda_3^k (j+k-1)}{(j-1)! k!} \frac{1}{(s + \lambda_2 + \lambda_3)^{j+k}} + \frac{\lambda_2^j \lambda_3^k (j+k-1)}{j!(k-1)!} \frac{1}{(s + \lambda_2 + \lambda_3)^{j+k}} \tag{3}$$

Further, by replacing the probability (2) we obtain

$$P_{ijk}(t) = \frac{N!}{i! j! k!} \frac{\lambda_1^i \lambda_2^j \lambda_3^k t^i}{(\lambda_2 + \lambda_3)^N}$$

$i + j < N, k + j = N$ ;

$$\left[ e^{-\lambda_1 t} - e^{-\lambda_1 t} \sum_{r=0}^{n-1} \frac{[(\lambda_2 + \lambda_3)t]^r}{r!} \right] \tag{4}$$

Analogously we find:

$$P_{ijk}(t) = \frac{N!}{i!j!k!} \frac{\lambda_1^i \lambda_2^j \lambda_3^k t^k}{(\lambda_1 + \lambda_2)^N}$$

$$i + j = N, k + j = N; \left[ e^{-\lambda_3 t} - e^{-\lambda t} \sum_{r=0}^{n-1} \frac{[(\lambda_1 + \lambda_2)t]^r}{r!} \right] \quad (5)$$

It remains to determine the probability  $P_{ijk}(t)$ , where  $i + j = N, k + j = N$ ; we have

$$\frac{dP_{ijk}(t)}{dt} = \lambda_1 P_{i-1,j,k}(t) + \lambda_2 P_{i,j-1,k}(t) + \lambda_3 P_{i,j-1}(t) \quad (6)$$

where  $P_{i-1,j,k}(t)$ ,  $P_{i,j-1,k}(t)$ ,  $P_{i,j-1}(t)$  are determined, respectively from the formulas (4), (5), (1).

Solving the system of equations (6), we get:

$$P_{ijk}(t) = \frac{\lambda_1^i \lambda_2^j \lambda_3^k}{j!} \left\{ \frac{N!}{(\lambda_2 + \lambda_3)^N k! \lambda_1^i} \rho[i-1, x_1] + \frac{N!}{i!(\lambda_1 + \lambda_2)^N \lambda_3^k} \rho[k-1, x_3] + \frac{j(N+K-1)!}{i!k! \Lambda^{N+k}} \right.$$

$$\rho[N+k-1, x] - \frac{N!}{i!k!} \sum_{r=0}^{N-1} \left( \frac{i(\lambda_2 + \lambda_3)^{r-N} (r+i-1)}{r! \Lambda^{i+r}} \right) \rho[r+i-1, x]$$

$$\left. + \frac{k(\lambda_1 + \lambda_2)^{r-N} (k+r-1)!}{r! \Lambda^{k+r}} \rho[k+r-1, x] \right\}$$

where

$$\rho[y, z] = 1 - \sum_{m=0}^y \frac{z^m}{m!} e^{-z}; x_i = \lambda_i t (i=1, 2); x = \lambda t$$

The expected usefulness of the information obtained from the accounting information system for military medical institutions measured by the degree of significance for managerial decisions [18]  $V_{N,N}(t)$ , which will be got by the system while servicing, by the principle "first came – first served" [19], has the form:

$$V_{N,N}(t) = \sum_{u,j,k} P_{i,j,k}(t) [c_1 i + c_2 j + c_3 k]$$

In order to investigate the stationary regime, let us consider the second form  $V_{N,N}(t)$ . According to the formula of expected value, we have

$$V_{\alpha}(t) = \sum_{r=1}^3 \int_0^t \lambda_r e^{-\lambda u} [c_r + V_{\alpha} - \beta_r(t-u)] du \quad (7)$$

where

$$\alpha = \{\alpha_1, \alpha_2\}, \quad \lambda = \sum_{i=1}^3 \lambda_i$$

By differentiating (7) we get:

$$\frac{dV_{\alpha_1, \alpha_2}(t)}{dt} = \sum_{i=1}^3 \lambda_i c_i + \lambda_1 V_{\alpha_1, \alpha_2}(t) + \lambda_2 V_{\alpha_1-1, \alpha_2-1}(t) + \lambda_3 V_{\alpha_1, \alpha_2-1}(t) = \lambda V_{\alpha_1, \alpha_2}(t)$$

In the stationary regime, when  $t \rightarrow \infty$ , we have

$$V_{\alpha_1, \alpha_2} = R + \alpha V_{\alpha_1-1, \alpha_2} + \beta V_{\alpha_1-1, \alpha_2-1} + \gamma V_{\alpha_1, \alpha_2-1} \quad (8)$$

the degree of significance gives priority in processing of the data over their entrance into business records, traditional  $\leftrightarrow$  modern approach, where:

$$R = \frac{1}{\lambda} \sum_{i=1}^3 \lambda_i c_i; \alpha = \frac{\lambda_1}{\lambda}; \beta = \frac{\lambda_2}{\lambda}; \gamma = \frac{\lambda_3}{\lambda}$$

Let us introduce the production function:

$$\rho_{\alpha_2}(z) = \sum_{\alpha_1=1}^{\infty} V_{\alpha_1, \alpha_2} z^{\alpha_1}$$

Multiplying both sides of the equation (8) with  $z^{\alpha_1} i$  and summing by  $\alpha_1$ , from 1 to  $\infty$ , we get

$$\rho_{\alpha_2}(z) = R \frac{z}{1-z} + \alpha z [V_{0, \alpha_2} + \rho_{\alpha_2}^{(z)}] + \beta_z [V_{0, \alpha_2-1} + \rho_{\alpha_2-1}] + \gamma \rho_{\alpha_2-1}^{(z)}$$

Getting that  $V_{0, \alpha_2} = c_3 \alpha_2$ , we have the recurrent relationship

$$\rho_{\alpha_2}(z) = \frac{z}{(1-z)(1-\alpha_z)} - c_3 \beta \frac{z}{1-\alpha_z} + \alpha_2 c_3 (\alpha + \beta) \frac{z}{1-\alpha_z} + \rho_{\alpha_2-1}^{(z)} \frac{\beta_z + \gamma}{1-\alpha_z} \quad (9)$$

where:

$$\rho_0(z) = \sum_{\alpha_1=1} V_{\alpha_1,0} z^{\alpha_1} = \sum_{\alpha_1=1} c_1 \alpha_1 z^{\alpha_1} = c_1 \alpha_1 \frac{z}{(1-z)^2}$$

Let us denote:

$$A(z) = \frac{R_z}{(1-z)(1-\alpha_z)} - \frac{c_3 \beta_z}{1-\alpha_z}; B(z) = c_3(\alpha + \beta) \frac{z}{1-\alpha_z}; a(z) = \frac{\beta_z + \gamma}{1-\alpha_z}$$

Then, from the recurrent connection (9) we obtain:

$$\begin{aligned} \rho_{\alpha_2}(z) &= A(z) \frac{1-a^{\alpha_2}(z)}{1-a(z)} + B(z) \frac{\alpha_2}{1-a(z)} - \frac{a(z)(1-a^{\alpha_2}(z))}{(1-a(z))^2} + a^{\alpha_2}(z) \rho_0(z) = \\ &= \left[ \frac{A(z)}{1-a(z)} - \frac{B(z)a(z)}{(1-a(z))^2} \right] + a^{\alpha_2}(z) \left[ \rho_0(z) + \frac{B(z)a(z)}{(1-a(z))^2} - \frac{A(z)}{1-a(z)} \right] + \alpha_2 \frac{B(z)}{1-a(z)} \end{aligned} \tag{10}$$

Taking that

$$\frac{A(z)}{1-a(z)} = \frac{R}{\alpha + \beta} \frac{z}{(1-z)^2} - \frac{c_3 \beta}{\alpha + \beta} \frac{z}{1-z};$$

$$\frac{B(z)a(z)}{(1-a(z))^2} = \frac{c_3}{\alpha + \beta} \frac{z(\beta_z + \gamma)}{(\alpha + \beta)(1-z)^2};$$

we will transform the expression (10) in the form of:

$$\rho_{\alpha_2}(z) = \frac{R - C_3(\beta + \gamma)}{\alpha + \beta} \frac{z}{(1-z)^2} + a^{\alpha_2}(z) \frac{z}{(1-z)^2} \frac{(C_1 + C_3 - C_2)}{\alpha + \beta} + C_3 \alpha_2 \frac{z}{1-z}$$

Decomposing  $\rho_{\alpha_2}(z)$  in the series, by degrees z, we will get

$$\begin{aligned} \rho_{\alpha_2}(z) &= \sum_{\alpha_1=0}^{\infty} z^{\alpha_1} \left[ \alpha_1 \frac{R - C_3(\beta + \gamma)}{\alpha + \beta} + C_3 \alpha_2 + \frac{\beta(C_1 + C_3 - C_2)}{\alpha + \beta} \right] x \sum_{k=0}^{\alpha_1} C_{\alpha_2}^k \gamma_2^{\alpha_2+k-\alpha_1} + \beta^{\alpha_1-k} \\ &\sum_{j=0}^k a^j (k-j) \lambda(\alpha_2, j) + (1-z) \sum_{k=0}^{\alpha_2} C_{\alpha_2}^k \beta^k \gamma^{\alpha_2-k} \sum_{j=0}^{\alpha_1-k} a^j (\alpha_1 - k - j) \lambda(\alpha_2, j) \end{aligned} \tag{11}$$

Where:

$$x = \begin{cases} 1, & \text{if } \alpha_1 \leq \alpha_2 \\ 0, & \text{if } \alpha_1 > \alpha_2 \end{cases}$$

$$A(\alpha_2, j) = \frac{(\alpha_2 + j - 1)!}{(\alpha_2 - 1)! j!}$$

From expression (11), with title  $\alpha_1 = \alpha_2 = N$ , follows:

$$V_{N,N} = N \left( \frac{R - C_3(\beta + \gamma)}{\alpha + \beta} + C_3 \right) + \frac{\beta(C_1 + C_3 - C_2)}{\alpha + \beta} \sum_{k=0}^N C_{\alpha}^k \gamma^k \beta^{N-k} \sum_{j=0}^k \alpha^j (k-j) \Lambda(N, j) \quad (12)$$

Using (12) we find evaluation results obtained by using the dynamic servicing algorithm, compared with the algorithm of servicing on the principle "first came – first served". (Figure 2)

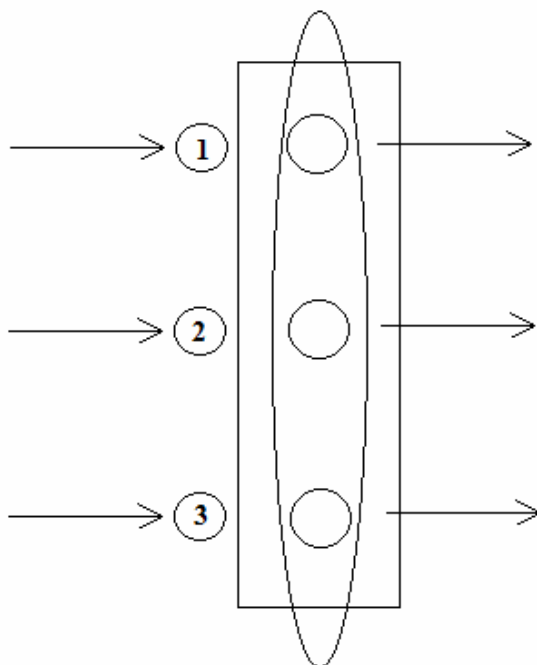


Figure 2 – Accounting process

The value that the information has for the company gives it the priority obtained by using the dynamic resource allocation algorithm, has the form:

$$\lambda_{\alpha}(t) = \sum_{r=1}^3 \int_0^t \lambda_r e^{-\Lambda u} \max \{C_r + \lambda_{\alpha-\beta_r}(t-u); \lambda_{\alpha}(t-u)\} du \quad (13)$$

Let us show that  $\delta(t) = \lambda_{N,N}(t) - V_{N,N}(t)$  is a non-declining function. Truly, by differentiating (7) and (13), we get:

$$\lambda'_{\alpha}(t) = \sum_{r=1}^3 \lambda_r \max \{ \lambda_{\alpha-\beta_r}(t) + C_{\beta_r} - \lambda_{\alpha}(t); 0 \};$$

$$V'_{\alpha}(t) = \sum_{r=1}^3 \lambda_r \{ V_{\alpha-\beta_r}(t) + C_{\beta_r} - V_{\alpha}(t) \};$$

From the last two expressions, directly follows that

$$\frac{d}{dt} [\lambda_{\alpha}(t) - V_{\alpha}(t)] \geq 0$$

where by the equality sign is for situations when  $t \rightarrow 0$ , due to continuity of  $\lambda_{\alpha}(t)$  and  $V_{\alpha}(t)$  and starting conditions  $\lambda_{\alpha}(0) = 0, V_{\alpha}(0) = 0$ . Thus, we have that:

$$\delta(t) = \lambda_{N,N}(t) - V_{N,N}(t) \leq \lim_{t \rightarrow \infty} \lambda_{N,N}(t) - \lim_{t \rightarrow \infty} V_{N,N}(t) \quad (14)$$

Supposing (for the purpose of defining) that  $C_1 + C_3 > C_2$ , we get the inequality:

$$\lambda_{N,N} = \lim_{t \rightarrow \infty} \lambda_{N,N}(t) < N(C_1 + C_3) \quad (15)$$

Based on the formula (12), we get:

$$\begin{aligned} V_{N,N} &= \lim_{t \rightarrow \infty} V_{N,N}(t) > N \left( \frac{R - C_3(\beta + \gamma)}{\alpha + \beta} + C_3 \right) + \frac{\beta(C_1 + C_3 - C_2)}{\alpha + \beta} \sum_{k=0}^N C_N^k \gamma^k \beta^{N-k} \\ \sum_{j=0}^{\infty} \alpha^j (k-j) \Lambda(n, j) &= N \left[ C_3 + \frac{R - C_3(\beta + \gamma)}{\alpha + \beta} + \frac{\beta(\gamma - \alpha)(C_1 + C_3 - C_2)}{(\alpha + \beta)(1 - \alpha)} \right] = \\ &= N \left[ C_2 \frac{\beta}{1 - \alpha} + (C_1 + C_3) \frac{\gamma}{1 - \alpha} \right] \end{aligned} \quad (16)$$

The given assessment for  $V_{N,N}$  is adequate when  $\gamma > \alpha$ . In the case when  $\gamma < \alpha$ , assessment has the form:

$$V_{N,N} > N \left[ C_2 \frac{\beta}{1-\gamma} + (C_1 + C_3) \frac{\alpha}{1-\gamma} \right] \quad (17)$$

By replacing (15) – (17) into (14), we get the assessment

$$\delta(t) < \frac{N(C_1 + C_3 - C_2)\beta}{\beta + \max\{\gamma, \alpha\}}$$

based on which we conclude on the appropriateness of applying the dynamic servicing algorithm.

## Conclusion

The importance of values in this system represents the basis for determining accounting information system during its implementation in military medical institutions. Based on the represented we can conclude that the accounting information system instead of the simple chronological system first came – first served, must be based on dynamic algorithm. This research is focused on development of dynamic, high-frequency, elastic, unique integrated and highly sophisticated accounting information system, which will produce timely, reliable and secure information for military medical institutions. The information system demands the possibility of processing accounting data with the goal of quality improvement of financial reports.

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# APPLICATION OF INFORMATION TECHNOLOGY AND E-BUSINESS IN OPTIMIZING THE COMPETITIVE ADVANTAGES OF SMALL AND MEDIUM-SIZED ENTERPRISES

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In order to review and study the issues of competitiveness and optimization of business operations with the use of IT and e-business, the paper will study, analyze and elaborate on the several key criteria formulated in research questions. Exploration of these questions through desktop and empirical research examines in detail the role and impact of new technologies, especially information technology in optimizing the competitive advantages of small and medium-sized enterprises. Research eventually assesses the degree of optimization of technological inputs and outputs in the development of competitive capacity of SMEs and offers appropriate conclusions.

*Key words: investing, innovations, new technologies, competitiveness, global market*

## Introduction

Information technologies and electronic business have one of the more important roles in creation of competitive advantages for SMEs, on local and global market too. All global market players certainly have one common thing – use of ICT. It is impossible to imagine a global world company not using ICT. (Veljović et al., 2009).

Adequate adjustment of IT possibilities to the SMEs strategic goals is a key for success in modern enterprises. SMEs exist and operate in the fields of retail, wholesale trade, service sectors and in production of highly specialized demand (Vemić, 2008). Use of IT is basic factor in the enhancement of business performances of an enterprise. Change of production technology caused radical changes within organization of enterprises at one time; in the same way, radical changes are happening today under the influence of IT – which is becoming foundation of modern business (Bešić et al., 2009). Business success is realized through its elements (factors) (Bešić et al., 2010).

At the centre of the EU development strategy is innovativeness. Innovative organizations are characterized by their skill to direct creativity toward beneficial results. (Randić and Lekić,

2009). Innovative lag is the biggest one in the field of intellectual property. Organizations – in the spirit of competitive fight – are oriented to finding personal advantages (Papić, 2011).

Increase of competitiveness of SMEs is becoming the most important direction within further economic development. Contemporary business environment does not question introduction of enterprises' changes, but it is interested in the way and speed the changes are conducted. (Milošević, 2014). Constant adaptation and presentation at the market of new or changed products and services are foundation for the enterprises' increase in modern economy (Milosavljević, 2006).

Questions of application of IT and E-business in optimization of SMEs competitive advantage are research subjects in this work. Internet infrastructure is now used for mutual coordination and synchronization of activities in business process. (Živadinović, 2010). E-commerce represents business communication and transfer of goods and services (buying and selling) through networks and computers, as well as transfer of capital using digital technologies. (Jokić and Mikić, 2008)

## Optimization of Competitiveness through IT and Electronic Business

At the Summit EU – Western Balkans held in mid-2003 in Thessaloniki, the various Western Balkans countries (Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Serbia and Montenegro) adopted the European Charter for Small Enterprises. The Charter was adopted in the framework of the Lisbon agenda to improve cooperation between the member states of the European Union and the countries of the Western Balkans. It reflects the commitment of countries to SMEs as a major source of new jobs, innovation, economic dynamics and social inclusion. Since its adoption the Charter has become the main platform for pursuing policies optimal for the development of small enterprises and entrepreneurship in the region.

In addition to the European Charter, the European Commission in 2010 also adopted the Strategy for smart, sustainable and inclusive economic growth – or briefly Europe 2020. This strategy builds on the Lisbon Strategy, which defines the main principles for formulating an effective policy for the development of SMEs. All objectives of the strategy are aimed at increasing employment, strengthening research and innovation, education, reduction of greenhouse gas emissions and boosting energy efficiency and fighting poverty.

The strategy defines these three main operational objectives:

1. smart growth – implying economy optimization based on knowledge and innovation;
2. sustainable growth – implying stimulation of the optimized economic competitiveness, optimal and efficient use of resources, while taking into consideration the conditions of globalization;
3. inclusive growth – fostering growth of employment and education, social protection systems and combating poverty.

Since 2009, monitoring of the implementation of this strategy and the progress of SMEs reform policies in the Western Balkans has been effectively carried out.

The economic environment in Western Balkan countries is therefore based on the progress of the market economy and private sector development.

Technological process makes the basis for economic modernization aiming to enhance the efficacy, rationality and business economy, compatibility of communication system among all participants globally. There is a conception about global processes as being encouraged by technological achievements, which means that globalization is the fundamental tendency of technological progress. Therefore, globalization is originally defined through reference to the development of technology, communication, information progress – which makes the world more or less inter-dependent in many ways (Šarac at al., 2015).

However, besides some minor improvements of economic trends in the region, the trend of negative business development continues in most countries, which requires further efforts towards optimizing key factors of production.

Organizations, ready to accept flexibility and change, are necessary nowadays (Albijić, 2013).

Innovation implies improvement of the existing product, creation of a new product, improvement of the production process or admittance into new marketplace (Njeguš, 2009).

According to leading economists and relevant researches cited in the paper, the three reform areas that can assist the Western Balkan countries and allow them to quickly overcome the crisis, are as follows: continued fiscal consolidation, improvement of business climate and optimization of knowledge and skills necessary for economic development. According to the World Bank these three reform areas alone could have contributed to an average rate of economic growth in all five countries of the Western Balkans of around 1.7 percent in 2013. This paper explores the third pillar as knowledge management optimization through IT and e-business utilization.

Within this framework optimization of competitiveness through IT and electronic business is considered among the most important issues in many countries and companies.

General companies' orientation towards world market resulted in tremendous mobility of goods and services, and in enrichment of the market offer – which became part of global market ambience (Ivković at al., 2012).

Information technologies enable new methods of information interchange – which represents the most valuable business resource of today. New technologies encourage development of new organizational forms and structures, i.e. innovative business methods (Obradović at al., 2011).

The struggle for competitiveness is not just between companies on a national and regional level but also between countries at international level.

Companies' strategy may vary from country to country, but, for the promotion of success on the external market, internal competitiveness is important – since 'healthy competitiveness' is fruitful ground for innovation (Jednak, 2008).

Measuring the competitiveness of the national economy is of particular importance, given that it contributes to the advancement of business and overall economic growth.

Basis for SMEs management represents management based on innovations, since only such management that stimulates innovations enables survival and growth (Avlijaš, 2008).

If competitiveness in the global market is poor, then the national economy suffers, leading to protectionism, non-transparent government subsidies and barriers to enterprise development.

The biggest change on the labor market was introduced by information technologies, which directly influenced business methods as well as costs reduction in different fields (Jeremić, 2016).

Optimization through IT and e-business is an effort to counter such trends.

Web technology, i.e. application of the newest technological achievements is a tool used by companies in order to attract new customers, but also to strengthen communication with the existing ones (Ratković at al., 2011).

Since 2005 the World Economic Forum has based its analysis of the competitiveness on the Global Competitiveness Index.

Organizations that want to be globally competitive must be capable of fast transformation (Mašić, 2010).

This is a very comprehensive index that includes micro and macroeconomic foundations of national competitiveness.

Enterprises not able to use technology optimally will always lag behind, and perhaps they will not survive aggressive competitiveness (Bugarić, 2010).

In order to rank the national economy, this methodology takes into account the key factors and systematizes them in institutions, infrastructure, macroeconomic environment, health and primary education, higher education and vocational training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation, which are all the key optimizing factors in IT and e-business.

Introduction of new information technologies implies: enhancement of business procedures and of work efficacy, simplification and speeding-up of practical work, costs reduction, improvement of employees' productivity and saving of clients' time (Vukadinović and Jović, 2012).

Comparing the Balkan countries with developed European countries in terms of optimizing competitiveness, it is evident that they are lagging far behind in reducing the existing difference compared to other EU countries. This could have negative implications in terms of approaching EU membership and participation in European integration trends. In order to reduce this lag, it is necessary for economic national policies of the Balkan countries to reduce high operating costs, high tax levies, huge public debt, high unemployment, resolve difficulties in the liquidation of enterprises and create a positive business climate that would optimize competitiveness and innovation in the global market.

Innovations, among other things, are conditioned by the environment in which entrepreneurs operate. Environment generates creation and innovation. Environment in which innovations are used affects also their results (Ožegović and Sajfert, 2009).

The Internet as the largest and most popular global computer network, also known as an information highway intended for data exchange, is underutilized in the Balkan countries in terms of competitive optimization.

Changes within external environment initiated qualitative changes in business orientation of enterprises (Damjanović and Milisavljević, 2009).

Conclusions of this work advocate establishing computer networks between all the relevant scientific and business institutions, the use of e-business and computers as well as technology of packet transmission for the mutual exchange of information.

In modern, global, business environment, with focus on the Internet, crucial moment represents perfect communication between the manager and other participants (Milosavljević at al., 2013).

ICT is the key advanced technology and it is an initiator of innovations and productivity in the overall EU economy (Jevtić at al., 2011).

This technology allows the sharing of information in smaller packets and then sending them to specific computers. The Balkan countries could advance in the optimization of business competitiveness with the application of this technology. This will allow connections and exchange of data between different business computer networks.

'Ambience information' (business and general ambience) comprise: a scale of different data related to demography (population), social and material relations (salaries, pensions and other allowances), technical and social progress, fashion, politics and legislation and other processes and relations important for the companies' success (Jokić, 2010).

Closed computer network of dedicated professionals grows into open-ended networks in order to optimize competitiveness of enterprises. On a commercial basis internet facilities thus become a factor in optimizing competitiveness of enterprises. The Internet is thus becoming a network of a large number of networked computers around the world that are interconnected by optic cables, telephone lines, satellite links and other forms of communication connection, which operate on the basis of specific optimized business protocols. This network enables seamless two-way communication between all participants in the optimized business information traffic.

In terms of this paper Internet is a computer network infrastructure that is built by a specific standard used by all users, connected to each other by using TCP / IP, as well as individual business networks that form a single logical network in which all share a common addressing scheme.

In today's information society the Internet is a global communications medium and as such it is a factor optimization in terms of our research.

Digital economy led from industrial economy to the economy characterized by: information, immaterial property, non-transparent values, services, new organizational methods and institutional reforms (Njeguš, 2010).

Networks within and outside the company have their own services for business optimization. Business services are a set of functions packaged as a single entity and set up somewhere on the Internet to ad hoc serve other optimized programs and networks. The competitiveness of services and optimization in this regard can be grouped into: public services, basic business services, commercial search services, security services and system business services.

Web is one of the most important Internet services for business optimization. It allows access to multimedia and distributed databases in developing competitiveness and optimization of the company management functions. Using text, graphics, multimedia, and related files, it forms a vast network of easily accessible data.

In order to review and study the issues of competitiveness and optimization of business operations with the use of IT and e-business, the paper will study, analyze and elaborate on the following key criteria formulated in research questions: Optimizing electronic forms of communication and web site, the degree of management effectiveness, optimizing customer management and related web site material, the development of management systems and procedures for electronic responses and appeals, channels of internal communication, cooperation mechanisms between organizational units of the company, optimizing knowledge management, modernization of enterprises and employees, the level of use of modern information, development of employees and partners, financing the development of employees in the information sector, the budget for information technology, financial investments in information technology, innovative knowledge management in budget planning, the benefits of electronic payment cards, communication of employees and

company management, innovation in the field of information technology, progress arising from the use of new technologies, the level of commitment of management to introduce new information technologies and employee motivation to manage new technologies.

Exploration of these questions through desktop and empirical research examines in detail the role and impact of new technologies, especially information technology in optimizing the competitive advantages of small and medium-sized enterprises. Research eventually assesses the degree of optimization of technological inputs and outputs in the development of competitive capacity of SMEs and offers appropriate conclusions.

## Subject, Starting Points and Goals of Research

Subject of research in this work is application of IT and E-business in optimization of competitive advantage of SMEs. Fast changes in places where SMEs conduct their activities lead to the constant finding of answers in relation to challenges that they are exposed to. Answer to this question is found in the advancement of strategic competitive features, through application of IT and E-business.

New business forms are made due to the quick development of ICT, which become basis of modern business. In order to survive at the market, SMEs must conform to the new challenges and rules imposed by modern environment. Because of the competition challenges, advantages of modern IT must be recognized by top management.

On the basis of previous statements goal of the work is defined as: Application of IT and E-business in optimization of competitive advantage of SMEs as advancement of overall performances of organization.

Target group treated in this work are SMEs which present a huge part of Serbian economy and have the biggest impact on development of economy.

Research starts with hypothesis that with application of IT and E-business optimization of SMEs business can significantly improve and create competitive advantage.

## Basic Hypothesis of the Research

Through theoretical, empirical and desk research, hypothesis set in this work is testing impact of ICT and E-business on competitive advantage of SMEs.

Hypothesis: Optimization of SMEs business through IT and E-business had positive impact on competitiveness in the research period.

## Methodological-theoretical Framework of the Research

Statistical analysis of basic and control variables is used in this work for testing the hypothesis and results of empirical research.

With regard to the theoretical worthiness of statistic methods used in the research - methods are divided into two basic groups.

Basic method of descriptive statistical analysis of the observed data represents the first group. In this way we will define dominating characteristics of the observed group, calculate basic parameters, mean values and standard deviation for the hypothesis within the sample.

In the second phase of statistical analysis of the observed data we conduct statistical testing of dependable variables using Pearson's independence test.

## Research Methodology

With testing the hypothesis through empirical and desk research, we test positive impact of business optimization on competitiveness.

Eventual positive impact on competitiveness is explored, where suitable survey questions are as follows:

1. Is active policy of customers informing optimized by electronic communication forms, especially about plans, activities, decisions and services of the company?
2. Does company use user-oriented web presentations to optimize control of customers?
3. Are modern information technologies sufficiently used within information management?
4. Is part of the annual budget intended for information technologies?
5. Are modern information technologies sufficiently used for the purpose of collection of information?

Above stated hypothesis is tested with empirical research and statistical analysis. Sample of 137 SMEs is formed, of which 103 are small and 34 medium enterprises.

Survey questions are formulated in such a way that they can confirm accuracy of the hypothesis. Answers of the surveyed respondents are coded with 0 (negative answer) and with 1 (positive answer). Answers derived in this way are perceived as dichotomous chance variables, with two values: 0 and/or 1.

## Research Results

We present now suitable conclusion of the defined hypothesis, which understands positive impact on competitiveness with optimization of business. Formally, we introduce adequate dichotomous variables, which show (negative or positive) answers of the respondents. On the basis of the respondents' answers, variable (survey question) takes one out of two values:

- Yes (value – 1)
- No (value – 0)

Data gained in this way are quantified with especially introduced dichotomous (0/1) variables, or so-called indicators of the observed feature within the sample.



Table 1 – Interview Questions

	1	2	3	4	5	Mean
1. Is active policy of customers informing optimized by electronic communication forms, especially about plans, activities, decisions and services of the company?	0%	9%	36%	9%	46%	3.91
2. Does company use user-oriented web presentations to optimize control of customers?	32%	9%	14%	14%	31%	3.04
3. Are modern information technologies sufficiently used within information management?	9%	4,50%	14%	23%	50%	4.00
4. Is part of the annual budget intended for information technologies?	4.50%	9%	18%	31.50%	37%	3.95
5. Are modern information technologies sufficiently used for the purpose of collection of information?	0%	9%	36%	23%	32%	3.77

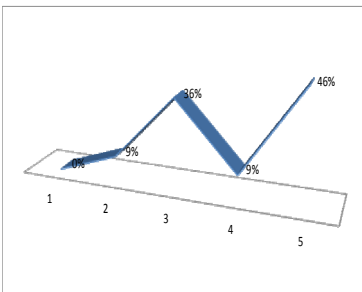


Figure 1 – Mean 3.91%

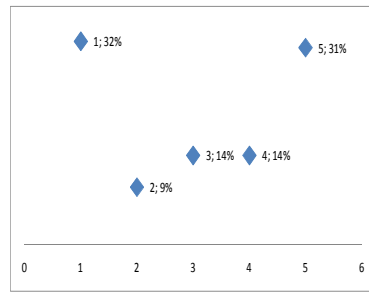


Figure 2 – Mean 3.04%

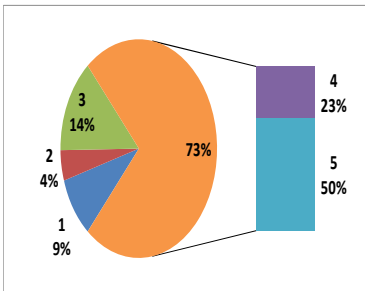


Figure 3 – Mean 4.00%

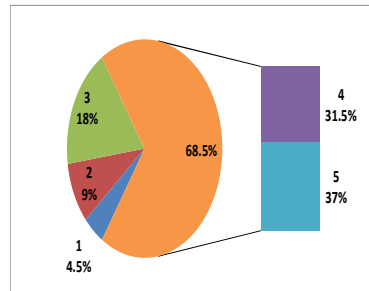


Figure 4 – Mean 3.95%

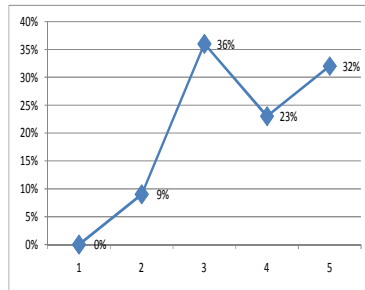


Figure 5 – Mean 3.77%

We examine, then, validity of hypothesis which supposes that investments in SMEs innovations and new information technologies in previously explored period had positive impact on relationship with the consumers. Part of the interview survey concerning this hypothesis has five questions, i.e. adequate dichotomous variables, whose observed values, along with the rest of descriptive-statistic indexes are displayed in Table 1.

Variable  $X_3$  has the biggest observed value; it presents positive attitudes of the SME respondents about keeping proactive and regular relations with the customers. Naturally, majority of respondents, 83.58% of them, answered this question confirmatively. Similarly, variable  $X_4$  shows nearly 80% of positive answers about IT budget planning. As for variable  $X_1$ , more than three quarters of the surveyed SME sample confirmatively answered the question about active policy for customers informing. It is important also to highlight the value of variable  $X_5$ , on the basis of which we conclude that more than 70% of the respondents sufficiently use modern information technologies for the purpose of collection of information. Variable  $X_2$  shows that almost two thirds of SME respondents affirm use of oriented web presentations.

Table 1a – Number of Observations, Mean and Standard Deviation of Key Variables

Variables	Description (survey questions)	SME Number	Proportion (p)	Standard deviation
$X_1$	Is active policy of customers informing optimized by electronic communication forms, especially about plans, activities, decisions and services of the company?	108	0.8060	0.3955
$X_2$	Does company use user-oriented web presentations to optimize control of customers?	38	0.2836	0.4507
$X_3$	Are modern information technologies sufficiently used within information management?	83	0.6058	0.4905
$X_4$	Is part of the annual budget intended for information technologies?	97	0.7080	0.4547
$X_5$	Are modern information technologies sufficiently used for the purpose of collection of information?	53	0.3869	0.4870

(Source: The projection of the authors)

Contrary to previous variables, variable  $X_2$  decidedly has the smallest observed value, i.e. surprisingly small number of SME respondents, only 28.36% of them, said that they possess user-oriented web-presentations suitable for each customer individually. The diagram of the proportions of SMEs positive responses is given in Figure 6.

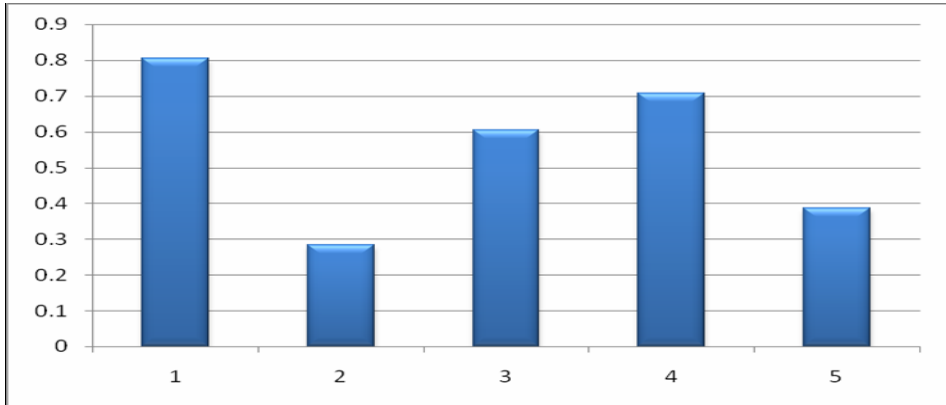


Figure 6 – The diagram of the arrangement of proportions of positive responses of the surveyed SMEs (Source: The projection of the authors)

The results of  $X^2$  testing of the above described variables, observed as the hypothesis modalities, in relation to the size of SMEs, are given in Table 2. The realized value  $X^2 = 12.67$  is slightly smaller than in the majority of the previously obtained values. This is, however, a consequence of the relatively small number of the degrees of freedom ( $n = 4$ ), because  $X^2$  statistically exceeds the critical values of  $X^2$  test – at both levels of significance:  $p < 0.01$  and  $p < 0.05$ . Therefore, with less than 1% of risk, we claim that there is a statistically significant relationship of the characteristics expressed in dichotomous variables ( $X_1, X_2, \dots, X_5$ ) to the size of SMEs.

Table 2 – The Realized Frequency Values by Size of SMEs and  $X^2$  Statistics of the Independence Test

Variables	Small enterprises		Medium-sized enterprises		$\Sigma$
	$f_i$	$f_i'$	$f_i$	$f_i'$	
$X_1$	75	67.33	33	40.67	108
$X_2$	21	24.68	17	13.32	38
$X_3$	58	57.05	25	25.95	83
$X_4$	68	63.72	29	33.28	97
$X_5$	25	35.09	28	17.91	53
$\Sigma$	247	247	132	132	$X^2=12.67^{**}$

(Source: The projection of the authors)

In other words, a positive impact on relations with customers, realized by investments and innovations in new information technologies, is directly dependent on the size of SMEs. Clearly, we see "dominance" of the medium-sized enterprises – they have expressed more positive attitudes in relation to the majority of survey questions of the hypothesis. This disproportion of affirmative responses is especially high among the  $X_1, X_3$  and  $X_4$  variables that we have previously analyzed. An insight into the formulation of survey questions that correspond to these three variables, clearly shows that responsible

management system, communication with customers and making of user-friendly web-sites can be related only to the medium-sized enterprises.

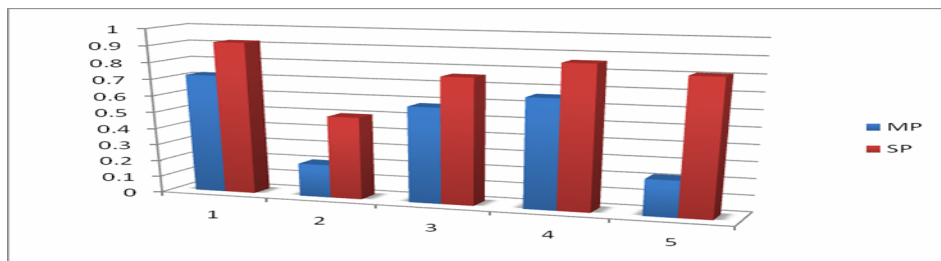


Figure 7 – The comparative diagram of the arrangement of proportions of positive SME responses  
(Source: The projection of the authors)

## Conclusion

We live in the era of growing globalization of the world market, faster development of modern technologies and their application in business organizations. Our research shows that IT and E-business are very progressively used and applied, and that they represent basis for SMEs competitiveness.

In this work we made statistical analysis of the hypothesis, beginning with descriptive–statistical method and finishing with Pearson’s independence test. Conducted statistical analysis was based on the application of important theoretical facts and modern approaches in theoretical-statistical analysis of similar problems. From all above stated, we may conclude that our results and conclusions are absolutely authoritative.

It is important to underline that majority of the respondents confirmatively answered the interview questions, which encourages the fact that SMEs have positive attitude towards IT and E-business.

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