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Ivana Damnjanović,
Faculty of Political Sciences, University of Belgrade

POLITICAL VIOLENCE AND TECHNOLOGY

Abstract

Throughout history, technology was used to enhance or multiply political power. One of the most common ways for this was technological enhancement of material basis of violence – weapons and other technologies facilitating more effective use of force. This feature of technology was recognized as useful by political actors, bot those representing the state and those opposing it. Political thought, however, did not consider technology in general and technologies of violence in particular, to be of interest, until two world wars drew its attention to this problem.

Keywords: technology, politics, violence, power, technological determinism

1. CONCEPTUAL FRAMEWORK: POLITICS, VIOLENCE, TECHNOLOGY

1.1. Politics

If there is a consensus about anything among political scientists, it would be about the fact that most of the key concepts in political science are still contested. There are no universally accepted definitions for most of them, including the fundamental concept of politics itself. Many reasons for this have been pointed out by various scholars. Sartory, for example, reminds that term is in use for over a thousand years, albeit with wide gaps, and that it was, over that time, subject to "spectacular" transformation of meaning. While in ancient Greece it was used to denote horizontal relationships between equals, since 19th century it usually denotes vertical

relations of power and authority.[1] Other authors emphasize the role of values in definition of politics[2], as well as domination of politics over science.[3]

Although there are innumerable definitions of politics, they can be classified by some key features. Even so, classification themselves vary, identifying from two to eight different groups of definitions.[4] Variety of definitions and approaches, as well as elaboration of reasons for this diversity, had lead some authors, such as Heywood, to ask whether politics is essentially contested concept.[5] Lack of consensus does not, however, mean that defining politics is impossible. What may be indeed impossible is to provide a short, and yet comprehensive, definition. For purposes of this paper, politics will be defined as a relatively autonomous sphere within society, which consists of political consciousness, processual and systematic political activities of actors who fight for decision-making power or compromise in order to realize their interests within allocation of values, as well as of organizational and institutional structure for managing of public affairs and solving problems within society.[6] This definition reflects the view of society as a totality, and also recognizes power and allocation of values as key components of politics. These features are of paramount importance in considering relations and connections between politics and technology and violence.

1.2. Violence

Definition of violence is somewhat less controversial. There are, however, opinions that, although it can be intuitively grasped, "violence is a conceptual minefield."[7]

1 Giovanni Sartori, "What is Politics"*, Political Theory*, Vol. 1, No. 1 (February, 1973), pp. 16-17

2 Mary Hawkesworth, Maurice Kogan, (eds.)*, Encyclopedia of Government and Politics*, vol. 1, Routledge, London, 1992, p. 25

3 Dragan Simeunović, *Uvod u političku teoriju*, Institut za političke studije, Beograd, 2009, p. 57

4 Stephen Tansey, *Politics: the Basics*, Routledge, London, 2004, pp. 5-6; Philip C. Chapman, Lawrence A. Scaff, "The Use & Abuse of Politics", *Polity*, Vol. 8, No. 4 (Summer, 1976), pp. 529-557; Mark E. Warren, "What is Political?", *Journal of Theoretical Politics* Vol. 11, No 2, pp. 210-217; Dragan Simeunović, *Uvod u političku teoriju*, Institut za političke studije, Beograd, 2009, pp. 50-61; Ljubomir Tadić, *Nauka o politici*, BIGZ, Beograd, 1996, pp. 70-75

5 Notion of essentially contested concept was first introduced by W. B. Gallie, „Essentially Contested Concepts", *Proceedings of the Aristotelian Society*, New Series, Vol. 56 (1955 - 1956), pp. 167-198. Heywood's discussion on politics as essentially contested concept is published in Andrew Heywood, *Politics*, Palgrave Macmillan, New York, 2002, p. 19

6 Dragan Simeunović, *Uvod u političku teoriju*, Institut za političke studije, Beograd, 2009, p. 61

7 Stathis N. Kalyvas, *The Logic of Violence in Civil War*, Cambridge University Press, Cambridge, 2006, p. 19

Problems in definitions of violence stem primarily from two sources. Firstly, concept of violence is closely intertwined with other concepts such as power, authority, force and aggression. Second source of conceptual confusion is the fact that violence is object of study of many sciences, such as biology, psychology, anthropology, sociology and political science. Every field of study focuses on different aspects of violence, and defines the concept according to its own interests. Violence can, however, be broadly defined as a human activity which includes use of force. Consequently, political violence would be conceptualized as direct or indirect, latent use of force in political sphere.[8] Such definition steers clear of most common misconceptions about political violence, those which equate it with collective violence, or terrorism, or apply the term exclusively to violence perpetrated by the state. Political violence can be, and was in the course of history, perpetrated by both state and non-state actors.

1.3 Technology

Social sciences started to show increased interest in technology in 20th century. For a very long time, it was studied mainly by economists, and for the most part considered to be a "given", or a constant.[9] Therefore, until recently, there was no substantive discussion about definition of technology. Although there are some authors who claim that there is no "essence" of technology, so that it can't be defined, contemporary definitions of technology usually fall into one of three groups. The first group of definitions focuses on technology as hardware; the second defines technology as a set of rules, and the third group conceptualizes technology as a system.[10] While the first and the second groups of definitions focus on a single aspects of technology, the third group includes them all, thus being the most useful for describing and understanding modern technologies. Therefore, in this paper technology will be defined as a complex system comprised of apparatus (hardware), techniques (methods, procedures and expert knowledge) and organization (rational-productive social arrangements).[11]

8 Dragan Simeunović, *Političko nasilje*, Radnička štampa, Beograd, 1989.

9 For example, see John Kenneth Galbraith, *The New Industrial State*, Princeton University Press, Princeton, 2007.

10 Val Dusek, *Philosophy of Technology:An Introduction*, Blackwell, Oxford, 2006, pp. 29-31

11 Langdon Winner, *Autonomous Technology*, MIT Press, Cambridge/London, 1977. pp. 11-12; 233

1.4 Technology as power enhancer

Most obvious point of intersection between spheres of politics and technology is the issue of power. As Winner points out, "The concern of science and technology with the possibilities of control have often found expression in terms which closely parallel the language of politics. This is perhaps not surprising if one recalls that both politics and technics have as their central focus the sources and exercise of power."[12] Actually, the term *power* was used in English in political context ever since 13th century, while its use in relation to technology dates back only to early 1700s.[13] Today, *technological power* is an expression frequently used by scholars and general public alike. Some authors, most notably Ellul, even equated technology with social, and especially political power.[14]

Whether technology can be rightfully described as a source, or even *the* source, of social power is, however, an issue that warrants closer examination. While Weber famously claims that practically *everything* can be the source of one's power,[15] several sources of social power were of paramount importance throughout history – wealth, force and information.[16] Although closely related to these, it is obvious that technology was rarely, if ever, a source of power in its own right. It was, in fact, frequently used to enhance or multiply power stemming from said sources. When discussing technology's relation to political violence, its role as enhancer of force is the most important. As Mumford points out: "Observe the enormous increase in the army as a power unit: the power was multiplied by the use of guns and canon, by the increase in the size and range of canon, by the multiplication of the number of men put in the field."[17] In other words, technology enhances material and economic bases of violence – economic resources and material instruments available to actors of violence. In that context, technological development can be seen as the base that enables new, and more dreadful, content of violent acts.[18]

12 Ibid, p. 20

13 For more details see Lewis Mumford, *The Myth of the Machine: Pentagon of Power*, Harcourt, Brace & World, New York, 1967.

14 Jacques Ellul, *The Technological Society*, Alfred A. Knopf, New York, 1967.

15 See Max Webber, *Economy and Society*, University of California Press, Berkeley, 1978, p. 53

16 See Dragan Simeunović, *Političko nasilje*, Radnička štampa, Beograd, 1989, pp. 5-9

17 Lewis Mumford, *Technics and Civilization,* University of Chicago Press, Chicago, 2010, p. 84

18 Dragan Simeunović, *Političko nasilje*, Radnička štampa, Beograd, 1989, p. 66

1.5 Tools and weapons

In society-technology debates, relationship between technology and violence had always had a prominent place. Difficulties in distinguishing tools from weapons is one of the mayor issues in this respect. The very fact that practically every technology can (and probably will) be abused in the act of violence, on either interpersonal or societal level, fuelled instrumentalist approach to technology for a very long time. This is sometimes referred to as the "blunt object phenomenon"[19] – the situation where literally any artefact, no matter how harmless it may seem, can be used to inflict injury onto another human being. Therefore, according to this argument, technology is not inherently good nor evil, and it does not have specific set of purposes. Will it be used as a *tool* or as a *weapon* entirely depends on the intent of the persons using it.

It is important to notice that this question is not merely academic – it spurs political debates ranging from acceptability of certain medical procedures to firearms control. Human cloning, for example, is deemed to be so controversial and potentially dangerous that it was constitutionally banned in at least two countries (Serbia and Switzerland). Regarding firearms control debate in United States of America, it is worth noting that motto of NRA (*National Rifle Association*, most prominent organization advocating the right to own and carry firearms) perfectly encapsulates instrumentalist paradigm: "Guns don't kill people, people kill people". Such stance was widely criticized from both technological determinists' and constructivists' points of view.[20] For example, one of the most prominent scholars of technological determinism, Marshall McLuhan, argues that claim "Firearms are in themselves neither good nor bad; it is the way they are used that determines their value" translates to "if the slugs reach the right people firearms are good", which is, in his view, untenable position.[21] Another perspective is provided by Jared Diamond, who describes in detail how firearms had been banned in 17th century Japan due to (and in order to maintain) political power of the samurai class.[22]

19 John Street, *Politics & Technology*, The Guilford Press, New York, 1992, p. 121

20 Technological determinism is a theoretical approach arguing that technological change drives social change. Constructivism emerged as a reaction to technological determinism, and it key claim is that technologies are socially constructed, or, in its more recent form, that technology and society shape each other.

21 Marshall McLuhan, *Understanding media,* MIT Press, Cambridge/London, 1994, p. 11

22 Jared Diamond, *Guns, germs and Steel,* W.W. Norton&Company, London/New York, 1999, p. 257

The controversy, however, is not confined to relatively modern technologies. One of the first scholars who wrote about multifaceted relationship between technology and society, Lewis Mumford, highlights in his works that ambiguity of technologies dates back all the way to the dawn of human culture. Two of the most important Paleolithic technologies, according to him, were woodman's ax[23] and bow and arrow, which he sees as "the first real machine".[24] Both of these, obviously, can, depending on the context, be labeled as tools or as weapons. Another example of this symbiosis is given by McNeill, according to whom in the Bronze Age, "warrior specialists emerged alongside metallurgical specialists, one class enjoying near monopoly of the other's product."[25] Later in history, this distinction became even more blurred. The fact that the term *engineer* first emerged, and was for centuries used exclusively in military vocabulary, illustrates this point.

2. TECHNOLOGIES FOR VIOLENCE: STATE AND NON-STATE ACTORS

2.1 Technology, violence and the state

Relationship between technology and the state is considered very important and widely studied by scholars of both politics and technology.[26] Since Weber's definition of the state as organization that has „the monopoly of the legitimate use of physical force"[27] is still fundamentally unchallenged, its us of technologies of violence – most notably, but not exclusively, weapons – was in the focus of many authors. From the beginnings of civilization, ruling elites had treated technology as a part of *arcana imperii*, as means of consolidation and expansion their power. Mumford, for example, argues, that the coupling of warriors' and priests' knowledge, both of which where predominantly *technical* in their nature, had directly lead to the establishment of kingdom as a form of government. Kingdom, he

23 Lewis Mumford, *Technics and Civilization,* University of Chicago Press, Chicago, 2010, p. 62

24 Lewis Mumford, *The Myth of the Machine: Technics and Human Development*, Harcourt, Brace & World, New York, 1967, p. 114

25 Упор. William H. McNeill, *The Pursuit of Power*, University of Chicago Press, Chicago, 1982, p. 1

26 For further elaboration of these connections see, for example, Ivana Damnjanović, "Država i tehnologija", *Srpska politička misao*, vol. 41, br. 3 (2013), pp. 113-128; for STS (Science, Technology and Society studies) perspective on the state, see Jan-Hendrik Passoth and Nicolas J. Rowland, "Actor-Network State: Integrating Actor-Network Theory and State Theory", *International Sociology*, Vol. 25, No. 6 (2010), pp. 818-841

27 Max Webber, *Economy and Society*, University of California Press, Berkeley, 1978.

continues, was made possible by the terrifying new weapon, the mace, which remained until this day a symbol of royal power in a stylized form of the scepter.[28]

Over the centuries, main domains of states' use of technology were indeed those most directly related to violence – military and police. Most of the research was, so far, focused on military technologies, yielding interesting and sometimes surprising results. While conventional wisdom, still heavily influenced by the notion of technological determinism, claims that new weapons develop new forms of organization, tactics and strategy, case studies suggest that often military technologies are developed, modified or abandoned in order to serve interests of particular groups within the state and/or military organization.[29] Nevertheless, ever since World War I,[30] states have at their disposal material and technological bases of violence that cannot be rivaled by any non-state actor.

Another, frequently neglected domain of states' use of technology is policing. For citizens this is perhaps most visible case of the state's use of technology.[31] Although less lethal then military technologies, and frequently derived from them, police technologies are becoming more diverse and more widely used.

To summarize: if anything, developments in technology had made states more capable for the effective use of violence, within or outside of national borders, and widened the gap between the set of technologies available to them and those available to non-state actors. Today, at the beginning of the 21st century, states are still the most important political "players", and their virtual monopoly on the most advanced technologies of violence is not to be underestimated. That, however, does not mean that states' power remains unchallenged. The role of the state in technological development is somewhat controversial, and further weakened by that very development. Ever more technologies operate across the national borders, or have consequences that surpass the territories and jurisdictions of individual states.

28 Lewis Mumford, *The Myth of the Machine: Technics and Human Development*, Harcourt, Brace & World, New York, 1967, p. 172

29 Donald MacKenzie and Judy Wajcman, „Technological determinism and weaponry", in Donald MacKenzie and Judy Wajcman (eds.), *The Social Shaping of Technology*, 2nd edition, Open University Press/McGraw-Hill, Maidenhead, 1999, pp. 343-344;

30 This will be further elaborated in the next part of the paper

31 See John Street, *Politics & Technology*, The Guilford Press, New York, 1992.

2.2 Technology as power enhancer for non-state actors

Ability of technologies to act as multiplier and enhancer of power was tempting not only for ruling elites, but also for all those groups who opposed them. While it is true that ruling classes were always the first to get hold of the newest and most advanced technologies,[32] they were usually not able to keep them in their exclusive possession in the long run. Throughout history, technologies had always, sooner or later, found their way to the masses, through the process Mumford calls "cultural infiltration".[33] Moreover, as writer William Gibson observed, "the street finds its own uses for things",[34] modifying and subverting artefacts and technological systems to serve purposes other than those originally intended. It does not come as a surprise, then, that various dissenting groups and movements are continuously trying to appropriate technologies and put them in use to fight the state by violent means.

Advantages provided by new technologies are especially alluring to extremist groups. By definition, extremists are always a minority within society. This, by extension, also applies to terrorists, whose ideological positions are usually extreme. The key reason why terrorists resort to terrorism is precisely "because they are not strong enough to do things differently."[35] Good example for this is the operation of the Rote Armee Fraktion (more commonly known as the *Baader-Meinhof Group*), which was frequently described as "war of the six against the 60 million". It is not surprising that many terrorist groups saw new technologies as the leverage, or tool, to compensate the lack of popular support.

Fascination with technology was even deeply embedded into the roots of modern terrorism. As many authors point out, terrorism, as we understand it today, was originally conceived by anarchist thinkers, who were also very enthusiastic about new weapons - especially dynamite. Writings of Johan Most and Karl Heinzen had spurred an entire subculture, a "cult of dynamite" among American anarchists.

32 Mumford extensively writes about the role of "The Citadel", part of the city where political power was concentrated and where most of technological advances of the old age had originated. See Lewis Mumford, *The Myth of the Machine: Technics and Human Development*, Harcourt, Brace & World, New York, 1967.

33 See Lewis Mumford, *The City in History*, Harcourt, Brace & World, New York, 1961.

34 Line is from Gibson's famous story *Burning Chrome*.

35 Herbert K. Tillema, "A Brief Theory of Terrorism and Technology", in Tushar K. Ghosh et. al. (eds.), *Science and Technology of Terrorism and Counterterrorism*, CRC Press, Boca Raton, 2010, p. 19

Their infatuation was so deep that they were publishing entire poems about revolutionary potential of explosive:

"At last a toast to science,
To dynamite, the force
The force in our own hands;
The world gets better day by day.
Dynamite today, dynamite tonight,
Most tells us how, he shows where
He says all in *Freiheit*
And [in] his good little book on warfare."[36]

To this day, all terrorist groups were keen on using the latest available technologies to promote their goals. This applies not only to weapons, but also to technologies of communication and transport. Interestingly, even those groups and individuals who are ideologically opposed to technological progress – such as radical islamists or lone wolfs like Unabomber – do not shy away from using latest technologies.[37]

But terrorists are not alone in exploiting technologies for purpose of fighting the government. Ever since so called "Battle in Seattle" – mass protests against WTO Ministerial Conference in 1999 coordinated mainly through then relatively new mobile phones[38] – there is ongoing interest in the role of new digital communication technologies in organizing and coordinating protests and riots. From "Twitter revolutions" in Moldova, Iran, Tunisia and Egypt[39] to "Twitter mobs" and "Blackberry mobs" accused for riots in Britain in 2011,[40] social media platforms are, frequently in the finest tradition of technological determinism, credited for enabling, facilitating or even causing forms of collective political violence. It is easy to overlook older, non-digital technologies that are also instrumental in violent forms of

36 Cited in Martin A. Miller, "The Intellectual Origins of Modern Terrorism in Europe", in Martha Crenshaw (ed.), *Terrorism in Context,* Penn State Press, University Park, 2007, p. 48

37 More about terrorists' use of technology in Ivana Damnjanović, "Terorizam i tehnologija", in Željko Bjelajac, Mina Zirojević Fatić (eds.), *Terorizam kao globalna pretnja*, Pravni fakultet za privredu i pravosuđe/Centar za bezbednosne studije, Novi Sad/Beograd, 2012.

38 See Paul de Armond, "Netwar in the Emerald City: WTO Protest Strategy and Tactics" in John Arquilla, David Ronfeldt (eds.), *Networks and Netwars: The Future of Terror, Crime, and Militancy*, RAND Corporation, Santa Monica, 2001.

39 See, for example, Christian Christensen, "Twitter Revolutions? Addressing Social Media and Dissent", *The Communication Review*, Vol. 14. No. 3, pp. 155-157; Evgeny Morozov, "Iran: Downside to the 'Twitter Revolution'", *Dissent*, Vol. 56, No. 4, pp. 10-14;

40 Christian Fuchs, "Behind the News: Social Media, Riots, and Revolutions", *Capital & Class*, Vol. 36, No. 3, pp. 383-391

political protests – from sky masks and motorcycle helmets used for obscuring identity and protection and doors used as shields, to Molotov cocktails and everyday objects used to build barricades.

Two general trends make this focus on social media justified to some extent, and also at least partially explain why non-state actors may be keen on using latest available technologies. First is the peculiarity of the term *technology* in everyday speech. In public discourse it is generally used to denote only the technologies of the latest generation. Therefore, while for the most part of the 20th century *technology* referred to things that are mechanical and huge, such as heavy industry, today it is mostly used in reference to things that are electronic and small, frequently as a synonym for gadgets.

Another trend, more closely related to politics, is that policies and legislation change more slowly than technology itself, so many abuses of technology are, at least for a while, in legal vacuum, or not illegal. On the other hand, however, once the legislation catches up, it is usually heavily influenced by those actors who traditionally draw their political power from control over economic resources.[41]

3. TECHNOLOGIES OF VIOLENCE AS A CATALYST FOR POLITICAL THOUGHT

3.1 First World War

It is hard to underestimate the profound consequences that First World War had in Europe, in practically every field of human endeavor. Unprecedented in geographic scope and deadliness, this war was an escalation not only of political and economical tensions in Europe, but also of "industrialization" of warfare that had started a whole century earlier.[42] New weapons had lead to new strategies,[43] and

41 Most recent example may be the attempt of General Motors and John Deere to reframe their vehicles as computers running on proprietary software and use copyright legislation to prevent users from modifying them, thus redefining the very meaning of property. See for example Kyle Wiens, *We Can't Let John Deere Destroy the Very Idea of Ownership*, Wired, 21.04.2015. Available at http://www.wired.com/2015/04/dmca-ownership-john-deere/ (Accessed 05.05.2015.); Kate Cox, *GM: That Car You Bought? We're Really The Ones Who Own It*. Available at http://consumerist.com/2015/05/20/gm-that-car-you-bought-were-really-the-ones-who-own-it/ (Accessed 05.05.2015.)

42 See Williamson A. Murray, "The Industrialization of War 1815-1871" in Geoffrey Parker (ed.), *The Cambridge History of Warfare*, Cambridge University Press, New York, 2005.

43 John Street, *Politics&Technology*, The Guilford Press, New York, 1992, pp. 14-15

transformed the very nature of warfare. Author Scott Westerfeld encapsulated this transformation very well, stating that "when you put the words machine and gun together, they both change."[44] But the machine gun was not the only new weapon used for the first time in the Great War. Flamethrowers, aircraft carriers and depth charges would also be on that list, but two most prominent technologies were the tank and the use of poisonous gases. Tanks had reshaped the strategy and tactics, and to this day remained one of the most recognizable symbols of military and war. Chemical warfare, on the other hand, was soon perceived as so horrifying (and hard to control), that it became the first internationally banned class of weapons. The *Geneva Protocol*, namely, states that "use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilized world" and should thus be prohibited by international law.[45]

But the war brought change in political thought as well. By then scholars and thinkers had been mostly infatuated by the idea of *progress*. The most important legacy of Enlightenment and positivism, in this context, was the notion that scientific and technological advancements will lead to social improvement.[46] This illusion was shattered by the horrors of the war, and the relationship between scientific/technological and social progress had to be reexamined.

3.2 The Bomb

Another seismic event, both in terms of relationship between politics and technology and of deliberation of technology in political thought, was success of nuclear energy, and its first embodiment in the form of atomic bomb in the Second World War. For the first time, science and technology were systematically integrated in the war efforts,[47] most famous instance being, of course, the Manhattan Project,

44 Cited in James Carrott, Brian Johnson, *Vintage Tomorrows: A Historian And A Futurist Journey Through Steampunk Into The Future of Technology*, O'Reilly Media, Sebastopol, 2013, p. 154

45 *Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare*, Geneva, 1925. Available at http://www.un.org/disarmament/WMD/Bio/pdf/Status_Protocol.pdf (Accessed 15.05.2015.)

46 See Ivana Damnjanović, "Znanje je moć: ideja progresa u istoriji političke misli", *Godišnjak Fakulteta političkih nauka,* Vol. 7, No. 9

47 See Andrew Jamison, "Technology's Theorists: Conceptions of Innovation in Relation to Science and Technology Policy", *Technology and Culture*, Vol. 30, No. 3, pp. 521-522

which "served as a model of science in the service of state".[48] Celebrated at first as not only instrumental, but necessary for victory over Nazism, nuclear energy (and particularly, though not exclusively, its military use) soon became perceived as a global threat.

Second World War, and especially "The Bomb", were also a starting point for many new themes and directions in social and political thought. For example, concern about "personal impact of mechanized war" had directly contributed to the birth of "military sociology".[49] Questions about ethical choices of scientist and engineers were raised, and hotly debated, by philosophers, social scientists and physicists alike. The role of science and technology (in general) and scientists and technologists (personally) in shaping political decisions became a legitimate subject of study for political science.

Huge potentials and dangers of nuclear energy had an immense impact on both domestic international politics, as well as everyday life. Nuclear threat and doctrine of mutually assured destruction had lead to new forms of indirect, psychological violence, affecting vast, potentially global, population.[50] Social consequences of nuclear technology were so tangible that, as Feenberg points out, "the humanities and social sciences were swept by a wave of technological determinism."[51] For the first time, physicist and political scientists alike were contemplating which political arrangements and institutions should be developed in order to properly govern nuclear technology, and, in particular, nuclear weapons.[52]

4. CONCLUSIONS

Technology was used to enhance power by providing more effective ways to use force ever since the dawn of civilization. In every era, within every form of government, technologies of violence were used by state and non-state political actors alike. For the most part of history, however, technological change was slow, and technology itself was seen as a mere instrument. Therefore it had no place in

48 Barton C. Hacker, "Military Institutions, Weapons, and Social Change: Toward a New History of Military Technology", *Technology and Culture*, Vol. 35, No. 4, p. 830

49 Ibid, p. 800

50 See Dragan Simeunović, *Političko nasilje*, Radnička štampa, Beograd, 1989.

51 Andrew Feenberg, *From Essentialism to Constructivism: Philosophy of Technology at the Crossroads*, http://www-rohan.sdsu.edu/faculty/feenberg/talk4.html (Accessed 28.01.2010.)

52 See, for example, Alvin M. Weinberg, "Social Institutions and Nuclear Energy", *Science*, Vol. 177, No. 4043 (Jul. 7, 1972); Robert A. Dahl, "Atomic Energy and the Democratic Process", *Annals of the American Academy of Political and Social Science*, Vol. 290 (Nov., 1953)

considerations of power and politics. Industrial revolution changed that, but not instantly. While European intellectuals were quite enamored with the notion of progress, both technological and social, analysis of specific technologies was conspicuously absent from literature on politics and society. Only in the aftermath of world wars, political science turned to more detailed study of technologies and their interaction with society and, specifically, the political sphere. Most of the discourse was shaped by the notion of technological determinism – idea that development of technologies (including weapons and weapon systems) is an autonomous process, and that technological change brings social and political change. This stance resonates even today, in literature about new information and communication technologies and their role in current political events. New, mostly constructivist approaches developed primarily in the field of Science, technology and society studies (STS) have proven useful for research of technological change and development of weapon systems in modern societies, but they are slowly gaining recognition among political scientists.

While it is true that technology increases potential reach and intensity of physical violence, it should be noted that some of the latest technologies actually decrease the need for physical violence and reduce chances of injury or death. This includes unprecedented levels of mass surveillance in modern societies, which, it could be argued, constitutes a new form of psychological violence, but at the same time reduces states' use of physical violence against political opponents. Even controversial drone strikes can be seen as a way to reduce the scope of political violence.

Since technological change is not decelerating, and violence seems to be a constant part of political behavior, political science should try to move beyond technological determinism and explore ways in which technological change can be shaped in line with current political and social values.

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POLITIČKO NASILJE I TEHNOLOGIJA

Apstrakt

Kroz celu istoriju, tehnologija je korišćena za uvećanje i umnožavanje političke moći. To se najčešće događalo putem unapređivanja materijalnih osnova nasilja – oružja i drugih tehnologija koje su omogućavale efikasniju upotrebu sile. Ovo svojstvo tehnologije prepoznali su i koristili različiti politički akteri – kako oni koji predstavljaju državu tako i oni koji joj se suprotstavljaju. Politička misao, međutim, nije smatrala pitanje tehnologije, pa ni naoružanja, naročito značajnim sve dok nova oružja korišćena u svetskim ratovima nisu skrenula pažnju istraživača na ovu temu.

Ključne reči: tehnologija, politika, nasilje, moć, tehnološki determinizam