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MISSILE DEFENSE ROLES IN THE POST-COLD WAR U.S. STRATEGY

ABSTRACT The debate on missile defense in the United States has been going on for more than half a century, and brought about extensive literature on this subject. Although many studies on BMDS are publications dedicated to U.S. strategy, foreign and security policy, only a few works are focused solely on the U.S. missile defense strategy in the post-Cold War era from the long-term perspective. The aim of this article is to discuss the U.S. missile defense strategy in the post-Cold War era. The paper consists of an introduction, three sections, and a conclusion. The introduction includes short literature review and explains the domestic and international significance of BMDS. In the first section, BMDS is defined and described, next the ongoing debate about sources of U.S. focus on missile defense development is presented. In the last section, four functions of the BMDS in the U.S. post-Cold War strategy are analyzed. Conclusion includes brief recap, as well as costs and benefits assessment of the consequences of the BMDS deployment.

Key words: Missile Defense, United States, grand strategy, Second Nuclear Age

The aim of the paper is to discuss the U.S. missile defense[1] strategy in the post-Cold War era. The paper consists of an introduction, three sections, and a conclusion. The introduction includes short literature review and explains the domestic and interna-

[1] Contemporarily, military systems focused on destroying ballistic missiles are called missile defense (MD) or ballistic missile defense (BMD). Previously, the name anti-ballistic missile (ABM) systems was quite commonly used. MD systems developed by different states should not be referred to as the Ballistic Missile Defense System (BMDS), which is the official name of the U.S. program. The direct predecessor of the BMDS was the Strategic Defense Initiative (SDI). On U.S. missile defense history during the Cold War, see A. Chayes, J.B. Wiesner (eds.), *ABM. An Evaluation of the Decision to Deploy an Antiballistic Missile System*, New York 1969; *History of Strategic Air and Ballistic Missile Defense*, Washington 2009 [1975]; D.R. Baucom, *The Origins of SDI, 1944-1983*, Lawrence 1992.

tional significance of the U.S. Ballistic Missile Defense System (BMDS). In the first section, the BMDS is briefly defined, and its main elements are described. In the second section, the ongoing debate about sources of U.S. focus on MD development is presented. In the third section, four functions of the BMDS in the U.S. post-Cold War strategy are introduced. Conclusion includes brief recap, as well as costs and benefits assessment of the consequences of the BMDS deployment.

The paper adopts three hypotheses: (1) international level variables are sufficient to explain the BMDS development; (2) in the post-Cold War era, we can distinguish four U.S. missile defense functions at the international level: dissuasion, deterrence, defense, and assurance; (3) overall costs of the BMDS exceed its benefits.

U.S. MISSILE DEFENSE STUDIES: THE STATE OF THE ART

As Czajkowski noted, the debate on missile defense in the United States has been going on for more than half a century, hence we can find the most extensive literature on this subject there. As a result, it is almost impossible for a scholar in the field of defense studies today to review the contents of such a vast list of publications.[2] It is not an exceptional situation, but a symptom of a broader trend in the social sciences, that of further specialization and compartmentalization.

A lot of the subject literature does not concern strictly the BMDS, but the broader issues such as U.S. grand strategy, foreign and security policy. Moreover, the U.S. authors come from different backgrounds, many of them being not only experts and analysts, but also former politicians and journalists. In fact, scholars grapple not only with a vast number of publications, but also with their considerable diversification: next to highly regarded scientific works, many *pseudoscientific publications providing arguments to the political order* emerge.[3]

Hence, it is not surprising that during many years, every time the U.S. government announced a new plan for the missile defense, one could observe a proliferation of that kind of studies. However, as Kelleher and Dobrowski noted in 2015, although President Obama changed his predecessor's plans in this area, *It has been nearly a decade since scholars and practitioners have assessed the state of ballistic missile defense* [...].[4] Yet, since the end of George W. Bush's presidency, new complex studies on BMDS have emerged gradually and this tendency intensified during the Obama administration's second term.

Among the above-mentioned complex studies on BMDS, one can list the following publications: Natalie Bormann, *National Missile Defense and the Politics of US Identity* (2008); Columba Peoples, *Justifying Ballistic Missile Defense. Technology, Security*

[2] M. Czajkowski, *Obrona przeciwrakietowa w stosunkach międzynarodowych*, Kraków 2013, p. 11.

[3] Ibid.

[4] C.M. Kelleher, P. Dombrowski, "Introduction", in iidem (eds.), *Regional Missile Defense from a Global Perspective*, Stanford 2015, p. 13.

and Culture (2010); Richard Dean Burns, *The Missile Defense Systems of George W. Bush. A Critical Assessment* (2010); Jacques S. Gansler, *Ballistic Missile Defense. Past and Future* (2010); Andrew Futter, *Ballistic Missile Defense and National Security Policy* (2013); Reuben Steff, *Strategic Thinking, Deterrence and the US Ballistic Missile Defense Project. From Truman to Obama* (2013); *Regional Missile Defense from a Global Perspective* edited by Catherine McArdle Kelleher and Peter Dombrowski (2015); Michael Mayer, *US Missile Defense Strategy. Engaging the Debate* (2015), and Laura Grego, George N. Lewis, David Wright, *Shielded from Oversight. The Disastrous US Approach to Strategic Missile Defense* (2016).[5]

Although many studies on BMDS are publications dedicated to U.S. strategy, foreign and security policy, only a few works are focused solely on the U.S. missile defense strategy in the post-Cold War era from the long-term perspective. One of the few exceptions is *U.S. Missile Defense Strategy. Engaging the Debate* written by Mayer and – partially – *Strategic Thinking, Deterrence and the US Ballistic Missile Defense Project. From Truman to Obama* by Steff. These two works were particularly useful for the assumptions adopted in this paper.

Meanwhile, the number of publications on BMDS has been growing outside the United States, especially in the context of American strategy and foreign policy.[6] Since the beginning of George W. Bush's presidency (2001-2009) and the announcement of his plans to deploy BMDS elements in Europe, the number of that kind of studies has been growing noticeably. It is worth mentioning, with regard to the author's country of origin, that numerous studies devoted to BMDS were published in Poland as well. The majority of these publications did not refer to the general profile of BMDS, but rather to the roles Poland and Europe play in this system.

Publications published in Poland were created mostly in two Polish research centers: Warsaw (with key governmental and analytical institutions) and Krakow (the second largest academic city). Among the authors associated with the Warsaw center, one can point to the following researchers: Mieczysław Malec, Paweł Durys, Piotr Pachols-

[5] N. Bormann, *National Missile Defense and the Politics of US Identity. A Poststructural Critique*, Manchester 2008; C. Peoples, *Justifying Ballistic Missile Defense. Technology, Security and Culture*, Cambridge 2010; R.D. Burns, *The Missile Defense Systems of George W. Bush. A Critical Assessment*, Westport 2010; J.S. Gansler, *Ballistic Missile Defense. Past and Future*, Washington 2010; A. Futter, *Ballistic Missile Defense and National Security Policy. Normalisation and Acceptance after the Cold War*, New York 2013; R. Steff, *Strategic Thinking, Deterrence and the US Ballistic Missile Defense Project. From Truman to Obama*, Farnham–Burlington 2013; C.M. Kelleher, P. Dombrowski (eds.), *Regional Missile...* (with the section titled "U.S. Policies and Programs" and including following articles: S.J. Koch, "Addressing the Missile Threat 1980-2008", pp. 17-32; J.M. Acton, "U.S. National Missile Defense Policy", pp. 33-47; A.F. Woolf, "Theater Ballistic Missile Defense Concept", p. 48-62); M. Mayer, *US Missile Defense Strategy. Engaging the Debate*, Boulder 2015; L. Grego, G.N. Lewis, D. Wright, *Shielded from Oversight. The Disastrous US Approach to Strategic Missile Defense*, Cambridge, Mass. 2016.

[6] M. Czajkowski, *Obrona przeciwrakietowa...*, p. 12.

ki (2001, 2004, 2015),[7] Marcin Kaczmarski (2004, 2007),[8] Beata Górka-Winter (2006, 2007),[9] Katarzyna Hołdak (2006, 2015),[10] Roman Kuźniar (2007),[11] Stanisław Koziej (2007, 2008),[12] Łukasz Kulesa (2009),[13] Dominik Jankowski (2011),[14] Marcin Piotrowski et al. (2013),[15] Mariusz Fryc (2014),[16] and Robert Kupiecki et al. (2015).[17] The most important representative of the Krakow center is Marek Czajkowski (2007, 2010, 2013, 2016).[18] Other authors from this city include Małgorzata Zachara, Wojciech Michnik (2008),[19] Joanna Danielewska (2008),[20] Michał Chorośnicki and Artur

7 M. Malec, P. Durys, P. Pacholski, *NMD. Amerykański program obrony przeciwrakietowej*, Warszawa–Toruń 2001; P. Pacholski, *Proliferacja rakiet balistycznych i rozwój systemów obrony przeciwrakietowej*, Warszawa 2004.

8 M. Kaczmarski, *Obrona przeciwrakietowa Stanów Zjednoczonych i jej implikacje międzynarodowe*, Toruń 2004; idem, "W poszukiwaniu bezpieczeństwa absolutnego", *Nowe Sprawy Polityczne*, no. 1 (2007).

9 B. Górka-Winter, "System obrony przeciwrakietowej Stanów Zjednoczonych – głos w dyskusji polskiej", *Polski Przegląd Dyplomatyczny*, no. 3 (2006), pp. 53-69; eadem, "Techniczne oblicza tarczy", *Polski Przegląd Dyplomatyczny*, no. 2 (2007), pp. 50-56.

10 K. Hołdak, "Amerykański system obrony przeciwrakietowej i jego implikacje dla Polski", *Bezpieczeństwo Narodowe*, no. 1 (2006), pp. 111-132; eadem, *Polska w amerykańskim systemie obrony przeciwrakietowej*, Warszawa 2008.

11 R. Kuźniar, "Tarcza zimnowojennej iluzji: militaryzacja ładu międzynarodowego", *Le Monde diplomatique. Miesięcznik społeczno-polityczny. Edycja polska*, no. 3 (2007), at <http://www.monde-diplomatique.pl/LMD22/index.php?id=13>, 31 August 2017.

12 S. Koziej, "Tarcza antyrakietowa. Dylematy strategiczne", *Znak*, no. 4 (2007), pp. 5-17; A. Karkoszka et al. (eds.), *Znaczenie europejskiego segmentu amerykańskiej obrony przeciwrakietowej dla równowagi strategicznej USA-Rosja*, Warszawa–Toruń 2008.

13 Ł. Kulesa, "Tarcza Obamy: prawda czy zmyłka?", *Polski Przegląd Dyplomatyczny*, no. 4/5 (2009), pp. 53-56.

14 D. Jankowski, *Amerykański system obrony przeciwrakietowej*, Toruń 2011.

15 M.A. Piotrowski (ed.), *Regional Approaches to the Role of Missile Defence in Reducing Nuclear Threats*, Warsaw 2013.

16 M. Fryc, "Rozwój amerykańskiego systemu przeciwrakietowego w Europie: czy możliwe jest przyspieszenie budowy 'tarczy'", *Bezpieczeństwo Narodowe*, vol. 31, no. 3 (2014), pp. 31-50.

17 R. Kupiecki (ed.), *Obrona przeciwrakietowa w polskiej perspektywie*, Warszawa 2015.

18 M. Czajkowski, "Rosja i amerykańska tarcza przeciwrakietowa", *Politeja*, no. 2 (2007), pp. 307-336; idem, "Geneza obrony przeciwrakietowej USA", *Politeja*, no. 1 (2010), pp. 291-318; idem, *Obrona przeciwrakietowa...*; idem, "Obrona przeciwrakietowa jako element stosunków strategicznych USA–ZSRR w czasie zimnej wojny", *Prace Komisji Historii Wojen i Wojskowości PAU*, vol. 10 (2016), pp. 149-164; idem, "The Missile Defence – Technology, Effectiveness and Organization – Key Issues", in this issue.

19 W. Michnik, M. Zachara, "Tarcza antyrakietowa i polska suwerenność", *Znak*, no. 5 (2008), pp. 85-94.

20 J. Danielewska, "Amerykański system obrony przeciwrakietowej – cele, koncepcje, umiejscowienie", *Bezpieczeństwo. Teoria i Praktyka*, vol. 2, no. 1-2 (2008), pp. 99-120.

Gruszczak (2008),[21] Rafał Kopeć (2013),[22] Grzegorz Nycz (2016),[23] Tomasz Pugacewicz (2008, 2010, 2011),[24] and Łukasz Kamieński (2009).[25] Authors working in research centers other than Warsaw and Krakow include Agata Cutter (2009),[26] Witold Ostant (2009),[27] Łukasz Szarpek and Marek Małysz (2009),[28] and Paweł Turczyński (2012).[29]

This paper is also created on the basis of reports prepared by Congressional Research Service (CRS) – U.S. governmental institution, which functions as internal think tank.

U.S. MISSILE DEFENSE: POLICYMAKERS' OR RESEARCHERS' OBSESSION (OR BOTH)?

Before defining BMDS and describing its main elements, it is necessary to answer the question why we should study the role of this military program in the U.S. strategy? As presented below, there seem to be both domestic and international reasons behind this.

Firstly, compared to other federal expenditures, the resources devoted to the missile defense development prove that BMDS has been one of U.S. security policy priorities.[30] This finding is not plainly evident, because the Missile Defense Agency

[21] M. Chorośnicki, A. Gruszczak (eds.), *Wpływ tarczy antyrakietowej na pozycję międzynarodową Polski. Konsekwencje umieszczenia elementów systemu obrony przeciwrakietowej Stanów Zjednoczonych na terytorium Rzeczypospolitej Polskiej*, Kraków 2008.

[22] R. Kopeć, "Systemy antyrakietowe zimnej wojny: uwarunkowania strategiczne", *Annales Universitatis Paedagogicae Cracoviensis. Studia de Securitate et Educatione Civili*, no. 3 (2013), pp. 42-55.

[23] G. Nycz, *W poszukiwaniu "equilibrium". Równowaga strategiczna i polityka bezpieczeństwa USA w latach 1945-2015*, Kraków 2016.

[24] T. Pugacewicz, "System obrony przeciwrakietowej USA a stosunki polsko-rosyjskie", in M. Chorośnicki, A. Gruszczak (eds.), *Wpływ tarczy...*, pp. 189-338; idem, "System obrony przeciwrakietowej Stanów Zjednoczonych (BMDS) a plany i struktury [obrony przeciwrakietowej] poszczególnych państw członkowskich oraz całego NATO", in M. Chorośnicki, A. Gruszczak (eds.), *Wpływ tarczy...*, pp. 406-462; idem, "Współpraca transatlantycka w obszarze systemów obrony przeciwrakietowej", in J. Cisek (ed.), *Współczesne relacje transatlantyckie*, Kraków 2010, pp. 139-154; idem, "Systemy obrony przeciwrakietowej Sojuszu Północnoatlantyckiego", in M. Pietraś, J. Olchowski (eds.), *NATO w pozimnowojennym środowisku (nie)bezpieczeństwa*, Lublin 2011, pp. 285-308.

[25] Ł. Kamieński, *Technologia i wojna przyszłości. Wokół nuklearnej i informacyjnej rewolucji w sprawach wojskowych*, Kraków 2009, p. 316-331.

[26] A. Cutter, "System Obrony Przeciwrakietowej w amerykańskiej koncepcji bezpieczeństwa narodowego", *Prace Naukowe Akademii im. Jana Długosza w Częstochowie. Res Politicae*, vol. 3 (2009), pp. 237-256.

[27] W. Ostant, "Tarcza antyrakietowa jako instrument amerykańskiej supremacji w międzynarodowym systemie bezpieczeństwa", *Przegląd Zachodni*, vol. 65, no. 1 (2009), pp. 227-260.

[28] Ł. Szarpek, M. Małysz, "Tarcza antyrakietowa jako element wzmacnia potęgi militarnej", in K.A. Kłosiński (ed.), *Stany Zjednoczone. Obrona hegemonii w XXI wieku*, Lublin 2009, pp. 325-338.

[29] P. Turczyński, *Amerykańskie koncepcje tarczy antyrakietowej w Europie*, Warszawa 2012.

[30] M. Czajkowski, *Obrona przeciwrakietowa...*, p. 261.

(MDA) expenditures are only a small part of the U.S. defense budget.[31] Annually, e.g., in FY2017, MDA spends around USD 8.2 billion and in the long-term perspective (FY1985-FY2017); this agency's aggregated expenditures were around USD 200 billion.[32] In the same period (FY1985-FY2017), the U.S. military and foreign spending was around USD 14,788 billion.[33] Hence, MDA total outlays constituted less than 1.5% of U.S. military and foreign budget in the last 32 years. The share of MDA expenditures in the whole federal budget is even smaller, because the defense budget in the above-mentioned period amounted to ca. 10-20% of total U.S. expenditures.[34]

The matter, however, is different when two other indicators are taken into consideration. Firstly, MDA outlays represent a significant part of Department of Defense's (DoD) Research and Development (R&D) budget. In FY2017, total DoD's R&D expenditures equaled USD 73.5 billion,[35] which means that MDA's R&D budget (USD 5.9 billion) represent 8% of all annual U.S. military R&D spending.[36] At the same time, in FY2017, MDA constitutes 4.5% of total U.S. military modernization expenditures (USD 183.9 billion) and is one of the nine biggest modernization programs in U.S. Armed Forces.[37] Concurrently, BMDS is the largest among DoD's acquisition programs financed outside the budgets of the four main military services (Army, Navy, Marine Corps and Air Forces).[38] Secondly, missile defense expenditures have been a permanent and stable element of the U.S. budget for the last thirty years, *even when domestic and international trends might have implied other prioritization*.[39] This trend is illustrated by the fact that MDA spending in FY2017 (USD 8.2 billion) made up al-

31 M. Mayer, *US Missile...*, pp. 185-186.

32 "Historical Funding for MDA FY85-17", Missile Defense Agency, at <https://www.mda.mil/global/documents/pdf/FY17_histfunds.pdf>, 31 August 2017. Comp. with M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 273-274; "U.S. Missile Defense Programs at a Glance", Arms Control Association, June 2017, at <https://www.armscontrol.org/factsheets/usmissiledefense>, 31 August 2017.

33 "Table 14.4 – Total Government Expenditures by Major Category of Expenditure: 1948-2016", The White House, at <https://www.whitehouse.gov/omb/budget/Historicals>, 31 August 2017; P. Towell, L.M. Williams, *The Trump Administration's March 2017 Defense Budget Proposals: Frequently Asked Questions. CRS Report*, 2017.

34 M. Mayer, *US Missile...*, pp. 185-186; "Table 14.4 – Total Government...".

35 P. Towell, L.M. Williams, *The Trump...*, p. 4. More on the U.S. R&D federal spending: J.F. Sargent et al., *Federal Research and Development Funding: FY2017. CRS Report*, 2017.

36 "PB 2017 Summary", Missile Defense Agency, at <https://www.mda.mil/global/documents/pdf/budgetfy17_summary.pdf>, 31 August 2017.

37 Modernization expenditures include not only R&D but also acquisition. "Program Acquisition Cost by Weapon System", U.S. Department of Defense, January 2016, pp. 4.1-4.6, at <http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2017/FY2017_Weapons.pdf>, 31 August 2017. Cf. R. Steff, *Strategic Thinking...*, p. 25.

38 T. Harrison, *Defense Modernization Plans through the 2020s. Addressing the Bow Wave*, Lanham 2016, p. 14.

39 M. Mayer, *US Missile...*, pp. 185-186. T. Harrison writes *The Selected Acquisition Report for BMDS submitted to Congress each year only includes projected funding though the end of the FYDP, but funding is assumed to continue in future years at roughly the same level* – T. Harrison, *Defense Modernization...*, p. 14.

most 1.5% of the DoD's budget (USD 620 billion), i.e. the same percentage as in the whole 1985-2017 period.

One can find arguments that are even more important on BMDS's significance, comparing it with similar types of undertakings developed by other states. Firstly, the U.S. missile defense program has the biggest budget in the world.[40] Secondly, BMDS is *the biggest missile defense program in the world* in terms of engaged elements.[41] Thirdly, even though the U.S. missile defense system is still in the early stage of its development and *some observers write about Russian or Israeli supremacy in this area*, BMDS is *the most technically advanced* missile defense program in the world.[42] Finally, in relation to other states developing missile defense programs and despite the low level of BMDS effectiveness, the U.S. government attaches to BMDS the most complex functions in strategic planning.[43]

Regarding the last point, it is important to note that weapons development and their relevance for U.S. strategy affect the real and perceived shape of the international security environment.[44] From this perspective, BMDS as the weapon system and element of U.S. grand strategy potentially affects almost all international actors, including the so-called rogue states attempting to get or possessing access to sensitive missile and nuclear technology (e.g. North Korea and, to some extent, Iran), other great powers with the established nuclear arsenal (e.g. Russia and China), U.S. allies and friends around the world (Germany, Japan and South Korea) and even non-state actors like terrorist organizations.

In summary, BMDS is a significant security issue both from the perspective of U.S. domestic resources and strategic planning, and at the same time, it is shaping international security environment.

U.S. BALLISTIC MISSILE DEFENSE SYSTEM: WHAT IS IT?

Without understanding the exact characteristics of BMDS, it is hard to present its role in the U.S. strategy. As general features of all missile defense systems and specific issues related with BMDS were presented in the introductory paper published in this section,[45] only the most important issues are addressed below. Depending on the perspective adopted, missile defense systems could be understood differently, but for the sake of this paper, it was assumed that MD is technically a device designed to destroy ballistic missiles.[46]

40 M. Czajkowski, *Obrona przeciwrakietowa...*, p. 261.

41 Ibid., p. 262.

42 Ibid., p. 161, 262-263.

43 Ibid., p. 261-262.

44 M. Mayer, *US Missile...*, p. 203.

45 M. Czajkowski, "The Missile Defence...".

46 Idem, *Obrona przeciwrakietowa...*, p. 261, 266; M. Mayer, *US Missile...*, p. 55. More on ballistic missile

Synthetically, the U.S. missile defense program – BMDS – could be characterized as a system:

(1) designed against limited attacks, as it has no capabilities to handle massive ballistic missile strike (for now and in forseeable future),[47]

(2) able to fight ballistic missiles in their midcourse and final phase;[48] even officially it is called a (multi-)layered defense, which suggests that it is capable of destroying missiles also in their boost phase (which is not the case),[49]

(3) deployed not only on the U.S. territory, but also in other three important regions of the world (Europe, Middle East, and Southeast Asia),[50]

(4) able to destroy ballistic missiles attacking not only the U.S. soil but also objects located on the territory of many other states and international waters (therefore it is called a 'global' system),[51]

(5) consisting of a few stationary and many mobile components, which to some extent gives it the ability to be reconfigured according to the most pressing demands,[52]

(6) featuring open architecture, so that new elements can be easily added in the future,[53]

(7) with network-centric warfare capabilities, since its components are interoperable and enable fast exchange of information (as a result, the so called launch on remote is possible),[54]

(8) land-, sea-, air-, and space-based,

(9) consisting of components focused on three mission types: (a) detecting, tracing and discrimination, (b) intercepting, and (c) commanding[55] (additionally Missile Defense Agency is conducting R&D and weapons acquisition process[56]),

types: M. Czajkowski, "The Missile Defence..."; idem, *Obrona przeciwrakietowa...*, p. 66-76; M. Mayer, *US Missile...*, pp. 41-46.

47 M. Czajkowski, *Obrona przeciwrakietowa...*, p. 261.

48 M. Mayer, *US Missile...*, p. 46.

49 M. Czajkowski, *Obrona przeciwrakietowa...*, p. 266, 270-271.

50 Ibid., pp. 23-24. The U.S. is systematically developing regional missile defense systems in three mentioned parts of the world (Europe, Middle East and Southeast Asia) based on American permanent and temporary military presence there, and its allies contributing capabilities. During Barack Obama's presidency the idea of the so called 'Phased Adaptive Approach' to regional threats was proposed as *commitment to deploy technology that is proven, cost-effective, and adaptable to an evolving security environment* [in the particular region]. Firstly introduced in Europe as the European Phased Adaptive Approach (EPAA) – under the NATO umbrella – over time replicated in two other mentioned regions. "Fact Sheet on U.S. Missile Defense Policy", The American Presidency Project, 17 September 2009, at <http://www.presidency.ucsb.edu/ws/index.php?pid=123052>, 7 August 2017; M. Mayer, *US Missile...*, pp. 157-158, 162-165, 174-178; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 265, 268, 282-283.

51 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 261, 266.

52 Ibid., pp. 270-271; idem, "The Missile Defence...", p. 23; M. Mayer, *US Missile...*, p. 46.

53 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 270-271.

54 Ibid., pp. 270-271.

55 Ibid., pp. 271-273.

56 Idem, "The Missile Defence...", p. 21.

(10) consisting of systems which are not sufficiently tested and their efficiency is not confirmed, even though most of the elements have officially operational status in the military.[57]

BMDS SOURCE: DOMESTIC VERSUS INTERNATIONAL (STRATEGIC) FACTORS

It is impossible to understand the BMDS development, as well as advanced and complex roles played by this system in the U.S. strategy without tracing the factors behind constant financing for this program. As Mayer notes, in the contemporary literature on this topic we have two dichotomous explanations of the described phenomenon.[58] On one hand, U.S. missile defense system is a result of domestic factors such as interest groups' politics.[59] On the other, BMDS is perceived as an answer to the post-Cold War international security environment (usually called 'strategic factors').[60]

This debate reflects a more general dispute in International Relations or Security Studies lasting since the 1950s on the so-called level of analysis problem. The essence of this argument is the question which level of factors has more explanatory power in the case of foreign policy or security policy (defined as a combination of domestic and foreign policy). Depending on the criteria adopted, three or more levels of indicators could be distinguished (e.g., individual, state, and international system).[61]

In reference to the level of analysis problem, two things should be noted. Firstly, only when incorporating all levels of analysis, a full explanation of particular social phenomenon is possible. Focusing only on one level of analysis is a form of reductionism and results in the omission of factors from other levels. Secondly, different IR theories or security theories usually adopt assumptions focused only on one level. For example, structural realism (neorealism) assumes that only factors from the international system level are important, while it ignores other factors (e.g. the domestic one).

In the case of the BMDS literature, the main dividing line on the question of level of analysis lies between the scholars focusing on the shape of the post-Cold War international system and those concentrated on broadly defined domestic factors. In the latter case, researchers refer to the whole American society's nature, interest groups (especially economic) domination in the U.S. politics, ideological stance of ruling elite and even preferences of particular decision makers. As a consequence of that split, proponents of international system factors as a source of BMDS are usually applying some kind of

[57] M. Mayer, *US Missile...*, pp. 48, 56-59; M. Czajkowski, *Obrona przeciwrakietowa...*, p. 275; idem, "The Missile Defence...", p. 8.

[58] M. Mayer, *US Missile...*, pp. 4, 183.

[59] Ibid., pp. 4, 6, 183; R. Steff, *Strategic Thinking...*, pp. 30, 170-175.

[60] M. Mayer, *US Missile...*, p. 183.

[61] K.E. Jørgensen, *International Relations Theory. A New Introduction*, Basingstoke–New York 2010, pp. 17-18.

structural realism theory, while supporters of the domestic factors are embracing liberal, constructivist or critical theories.[62]

At the same time, it is important to note that the dividing line between the supporters of the domestic and international system explanations usually overlaps with the general split between the BMDS development sympathizers and opponents. Supporters of the U.S. missile defense system refer to the threats emerging from the international security environment, while adversaries disagree and perceive BMDS as an unnecessary program from the international system perspective. Instead, they assume that idiosyncratic American domestic factors force U.S. government to develop this program.

In the light of the debates described above, it is not surprising that the backers of BMDS usually use theories associated with the international system (e.g. hegemonic stability theory), while U.S. missile defense opponents utilize liberalism, constructivism or critical theory. However, also many supporters of structural realism are against the development of that kind weapon.[63]

Those two lines of thinking, present in the literature on factors driving the BMDS development, are described in details below.

As it was mentioned, the opponents of U.S. missile defense project indicate that factors from international security environment do not explain the pursuit of that system. We can distinguish three types of arguments along this way of reasoning.

Firstly, what is quite often omitted, they show a paradox existing in the thinking on international environment as a source of the BMDS. On one hand, it is said that in the post-Cold War era missile defense is necessary because a new, more unstable security environment exists. On the other, the development of U.S. missile began already in the Cold War environment and was intensified during Bush junior presidency. As a result, the change of international system after the Soviet Union collapse is insufficient to explain the BMDS development, because the U.S. missile defense project was launched before and intensified ten years after the transformation of international system at the end of the 1980s and the beginning of the1990s.[64]

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[62] Only a limited number of publication show interest in the IR theories perspectives on BMDS. A. Kirpsza, "Tarcza antyrakietowa z perspektywy teorii stosunków międzynarodowych", in M. Chorośnicki, A. Gruszczak (eds.), *Wpływ tarczy...*, pp. 19-84; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 13-15, 21-30; R. Steff, *Strategic Thinking...*, pp. 7-13; Ł. Kamieński, *Technologia...*, pp. 158-159, 164-167. Usually theoretical writings on the BMDS are associated with the deterrence theory: S.L. Quackenbush, "National Missile Defense and Deterrence". *Political Research Quarterly*, vol. 59, no. 4 (2006), pp. 533-541, at <https://doi.org/10.1177/106591290605900403>; J. Gibilterra, "Conditional Deterrence and Missile Defense", *Comparative Strategy*, vol. 34, no. 1 (2015), pp. 64-73, at <https://doi.org/10.1080/01495933.2014.962976>; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 29-35. Cf. comments on the relation between deterrence theory and realism: R. Steff, *Strategic Thinking...*, pp. 10-11.

[63] R. Steff, *Strategic Thinking...*, pp. 27, 139-140; 161-162; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 11-13; Ł. Kamieński, *Technologia...*, pp. 158-159, 164-167; A Kirpsza, "Tarcza antyrakietowa...", pp. 19-84.

[64] M. Mayer, *US Missile...*, p. 183; R. Steff, *Strategic Thinking...*, pp. 3, 29-30.

Secondly, the BMDS opponents indicate that this system is not warranted on the basis of an international system, because: (1) there are not any vital ballistic missile threats for the United States; (2) any ballistic missile attack on the U.S. is costly, complicated and with limited chances for success, (3) main U.S. adversaries – North Korea and Iran – will never build intercontinental ballistic missiles.[65]

Finally, even though some U.S. missile program adversaries agree that there is a real ballistic missile threat to the U.S., they consider BMDS an inappropriate instrument for dealing with such a danger. First of all, the U.S. missile defense does not have, and probably will not have in the future, the technical capacity to destroy all incoming missiles.[66] Even if BMDS acquires such capacity, the cost will be too high, so the system is useless from the cost-benefit relationship perspective. And when the BMDS opponents speak about costs, they not only include finance expenses, but also U.S. MD negative impact on the international security environment. In particular, BMDS could stimulate the ballistic missile and WMD proliferation (horizontal proliferation), technological improvements (vertical proliferation) and even antagonize the U.S. and other nuclear powers (China and Russia).[67] As Steff writes: *advocates of BMD have been minimizing the costs of deployment and over-emphasizing benefits*.[68] If BMDS could not handle the ballistic missile threat or excessive costs, the United States should rely on other methods – e.g. on conventional and nuclear armed forces ready to globally retaliate, *arms control, cooperative threat reduction efforts, diplomatic initiatives and preemptive strikes*.[69]

If the BMDS development could not be explained by factors from the international level, then it would be natural for the U.S. missile defense opponents to refer to different domestic factors.[70] In that case, they would refer to factors such as *domestic politics, an unswerving faith in technological solutions, American exceptionalism or wishful thinking*.[71] Domestic politics could relate to *bureaucratic coalitions, political deal making and the distributive nature of congressional district politics*.[72]

According to Mayer, *Recent academic works* [...] *have focused almost entirely on the domestic factors behind the system's deployment*.[73] In this context, Mayer and Czajkowski identify a number of works written from a perspective other than realism, in particular following critical theory: Yanarell (2002), Bormann (2008), Peoples (2010), Burns (2010), Futter (2013),[74] and partly Steff (2003).[75]

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65 M. Mayer, *US Missile...*, pp. 2-4; R. Steff, *Strategic Thinking...*, pp. 149-153.

66 M. Mayer, *US Missile...*, pp. 2-4; R. Steff, *Strategic Thinking...*, pp. 145-149.

67 M. Mayer, *US Missile...*, pp. 2-3; R. Steff, *Strategic Thinking...*, pp. 156-157.

68 R. Steff, *Strategic Thinking...*, p. 157.

69 M. Mayer, *US Missile...*, pp. 2-3, 199.

70 Ibid., p. 4.

71 Ibid. R. Steff, *Strategic Thinking...*, pp. 13, 168-170.

72 M. Mayer, *US Missile...*, p. 6. Cf. R. Steff, *Strategic Thinking...*, pp. 30, 170-175.

73 M. Mayer, *US Missile...*, p. 4.

74 Ibid., pp. 4, 8; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 14-15.

75 See e.g. R. Steff, *Strategic Thinking...*, pp. 159-176.

In contrast, the BMDS supporters refer to international level factors (the so-called strategic factors) to explain the need for the U.S. missile defense program in the post-Cold War era. In general, after the Soviet Union's collapse, the international security environment changed, as the then candidate for a Director of Central Intelligence, James Woolsey stated: *Yes, we have slain a large dragon.* [...] *But we live now in a jungle filled with a bewildering variety of poisonous snakes. And in many ways, the dragon was easier to keep track of*.[76] Meanwhile, in reference particularly to the missile defense system, the supporters of this system use the Second Nuclear Age concept to capture the change in the international system after the Cold War. Moreover, every nuclear age could be described by factors such as international system configuration, number of nuclear weapon owners, counter proliferation regime and effectiveness of deterrence.[77]

The First Nuclear Age was typical for the Cold War era. It was based on the bipolar system, resulting not in military confrontation but strategic stability based on Mutually Assured Destruction (MAD). The (offensive) nuclear weapon was sufficient to deter conventional and nuclear attack and provide stability, so it is not surprising that the deterrence theory was developed in that period. In this 'age', the proliferation was mainly vertical (two superpowers developed their nuclear arsenals), while horizontal proliferation was limited, because the nuclear club was still quite elite (France, United Kingdom, China, Israel, India and RSA acquired that kind of weapon). The horizontal proliferation was limited because special nonproliferation and counterproliferation regime based on the Nonproliferation Treaty was created. Both Soviet Russia and the United States blocked or limited that kind of proliferation in case of their satellite states and allies. For instance, the U.S. nuclear umbrella discourages Japan, South Korea, and West Germany from the pursuit of the nuclear weapon. Moreover, even when the horizontal proliferation occurred, it was not destabilizing the international system, because both superpowers pressed its client states and allies to limit their adventurism. Eventually, ballistic missiles armored with nuclear warheads were perceived as a revolution in warfare, because they resulted in stabilization, not in war.[78]

The Second Nuclear Age began with the end of the Cold War resulting in the collapse of the bipolar system.[79] In this age, vertical proliferation is quite limited, while the U.S. and Russia decrease their nuclear arsenals. Even though the nonproliferation

[76] D. Jehl, "C.I.A. Nominee Wary of Budget Cuts", *The New York Times*, 3 February 1993, at <http://www.nytimes.com/1993/02/03/us/cia-nominee-wary-of-budget-cuts.html>, 31 August 2017; M. Mayer, *US Missile...*, p. 3.

[77] Ł. Kamieński, *Technologia...*, p. 205.

[78] C.D. Walton, C.S. Gray, "Druga epoka nuklearna: broń jądrowa w XXI wieku", in J. Baylis (ed.), *Strategia we współczesnym świecie. Wprowadzenie do studiów strategicznych*, transl. by W. Nowicki, Kraków 2009, pp. 226-230, 237-238. Ł. Kamieński, *Technologia...*, pp. 134-136, 155, 205; R. Steff, *Strategic Thinking...*, pp. 1, 23-28; B. Roberts, "On the Strategic Value of Ballistic Missile Defense", *Proliferation Papers*, no. 50 (2014), pp. 11-14.

[79] C.D. Walton, C.S. Gray, "Druga epoka...", pp. 226, 231-236, 240-243; Ł. Kamieński, *Technologia...*, pp. 155-178, 203-205, 207-208; M. Mayer, *US Missile...*, pp. 3, 13, 15, 17, 19; R. Steff, *Strategic Thinking...*, pp. 27-28; B. Roberts, "On the Strategic...", p. 11. Cf. critical comments on the Second Nuclear Age: R. Steff, *Strategic Thinking...*, pp. 28, 150-156.

and counter-proliferation measures developed in the Cold War were still in force, the horizontal proliferation was developing while Pakistan and North Korea acquired this kind of WMD, and Iran was perceived as a country pursuing that kind of weapons. The resignation of South Africa from nuclear state status and of Libya from the pursuit of nuclear weapons were the only minor successes of nonproliferation in this age.

At the same time, U.S. nuclear weapons are not sufficient to deter other actors, because even though things are still working out with Russia and China, nuclear weapons could find their way to unpredictable and unstable states with other than Western strategic culture. The proliferation of WMD is not the most important source of destabilization in international relations, as the lack of bipolar system moderating forces in regional conflict with the nuclear states is more important. In the post-Cold War unipolar system, no other state than the United States could guarantee security, hence U.S. adversaries perceive nuclear weapons as the ultimate guarantee against the most dominant power in the international system. The development of nuclear weapons is also a tool to confront the regional adversary with advanced conventional forces or to gain international prestige and domestic legitimization. The horizontal proliferation could easily start to intensify (the so called nuclear cascade), as when one state in the region acquires nuclear weapon, its competitors will follow. It will concern not only U.S. enemies, but also allies, as U.S.-led nonproliferation efforts will fail, and the possibility of deterrence of the U.S. by the states newly equipped with nuclear weapons will be possible (the so-called nuclear blackmail). Finally, in the Second Nuclear Age, also non-state international actors are interested in nuclear weapons. As a result, in this era, the probability of conflict with ballistic missiles equipped with nuclear warheads is higher than in the First Nuclear Age, and the nuclear taboo could be a breach for the next time since 1945.

The transition between the first and second nuclear age resulted in the change of the role missile defense. In the First Nuclear Age, missile defense was a source of instability ('opposition to deterrence'), since it undermined the (offensive) nuclear weapons deterrence function and associated with it strategic stability. That is why and due to the Arms Control School popularity in the U.S. as a tool to manage bilateral relations, both Cold War superpowers agreed on the Anti-Ballistic Missile Treaty in 1972, limiting the missile defense development. At the same time, the prospect for missile defense progress was low while both superpowers had enough resources and technology to break MD.[80]

In the Second Nuclear Age, deterrence based on (offensive) nuclear forces works only partially, therefore missile defense has become an important measure to protect the U.S. against the negative results of the nuclear proliferation. With the disappearance of the Cold War strategic stability, missile defense has become an answer to the post-Cold War 'strategic jungle'. Especially given that new unpredictable WMD own-

[80] R. Steff, *Strategic Thinking...*, pp. 1-2. More on strategic stability and missile defense: G.D. Koblentz, "Strategic Stability in the Second Nuclear Age", *Council Special Report*, no. 71 (2014); A.R. Miles, "The Dynamics of Strategic Stability and Instability", *Comparative Strategy*, vol. 35, no. 5 (2016), p. 424.

ers (differently than Russia and China) do not have the capability and technology to overcome BMDS. In consequence, in the post-Cold War era, the U.S. missile defense system does not undermine strategic stability, but supplements it in those cases where (offensive) deterrence does notwork.[81]

In the recent years, one of the few works indicating international level factors as the dominating factor in the BMDS development is a book written by Mayer. He points out that searching for explanation of the U.S. missile defense system development at the domestic level factors in the first place is a mistake because: *Before seeking out alternative explanations, the Occam's razor approach of exploring the simplest explanation should at the very least be fully discounted by thoroughly investigating the strategy utility of missile defense*.[82] Especially given the fact that *It seems implausible that a combination of [dynamically changing in time] domestic variables would result in a missile defense policy that exhibits [1] such internal coherence and [2] consistency with an overarching grand strategy*.[83] Also, the constant financing of the BMDS development in the post-Cold War, although focused on different missile defense project depending on time, could indicate the dominance of external factor, not a domestic one.

In his analysis, Mayer concludes that international level factors *can more than adequately account for BMD policy*. The reason is that he demonstrated the connection between the BMDS assigned mission and the U.S. grand strategy. We could observe this relationship not only from the static perspective, but also in dynamic terms, as U.S. ballistic missile roles changed with the grand strategy transformation.[84] Of course, Mayer's conclusions are correct only when the following assumptions are true. Firstly, we need to assume that Mayer's analysis of president Clinton, Bush, and Obama policy is sufficient to make a generalization about all previous and future post-Cold War U.S. administrations. Secondly, the U.S. grand strategy should be *based upon policymakers' interpretation of the international system*.[85] Following Mayer's argument, if U.S. grand strategy, with which the BMDS development shows compliance, is the result of domestic level factors, then the U.S. missile defense system could not be explained by reference to international level factors.

Mayer also draws attention to the fact that BMDS is compatible with the U.S. grand strategy, because the latter has a specific shape. Namely, *Missile defense appears to be closely calibrated with an active and interventionist global posture for which continued strategic freedom of action is a precondition*.[86] This sustained essence of the U.S. grand

[81] Ibid., pp. 1-2; C.D. Walton, C.S. Gray, "Druga epoka...", pp. 234-235; Ł. Kamieński, *Technologia...*, pp. 329-330; M. Mayer, *US Missile...*, p. 13.

[82] M. Mayer, *US Missile...*, pp. 4-5.

[83] Ibid., pp. 6, 183-184.

[84] Ibid., pp. 6, 183-184, 204.

[85] Ibid., pp. 6.

[86] Ibid., pp. 24-25, 204. Similarly: M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 303, 306-309, 311-312; B. Roberts, "On the Strategic...", p. 11. Cf. *Defense Strategic Guidance*, Washington 2012, pp. 4-5; *Quadrennial Defense Review*, Washington 2014, pp. 19-20; *National Military Strategy of the United States of America*, Washington 2015, p. 16; *National Security Strategy*, Washington 2015, p. 8.

strategy in the post-Cold War era assumes not only that *acquisition of nuclear-armed ballistic missile by rogue states may deter the United States from initiating military action to secure its interest in key region*, but also that *the United States will almost certainly be required to engage its military overseas to protect its interest in the first place*.[87] Building the US grand strategy on the assumption mentioned above is important, because, as two analysts stated, *Since the end of the Cold War, the geographic range of American force deployments has increased, as have the demands upon those forces*.[88]

Mayer also correctly argues that if the U.S. grand strategy adopted reduction in foreign security commitments and, as a result, dropped in the overseas military presence, then (offensive) nuclear forces would be sufficient to provide deterrence. This kind of (central) deterrence is highly reliable, because the U.S. adversaries could be sure that their attack on American territory would be answered (i.e. there is no asymmetry of stakes). With effective deterrence provided by the nuclear weapons, the BMDS would be not necessary.[89]

The U.S. grand strategy based on the quest for domination in the world means that these country elite (mostly unconsciously) supports the aforementioned hegemonic stability theory. According to this theory, stability in the unipolar system is provided by the dominating most powerful state fulfilling the hegemonic role. The hegemon develops rules commonly accepted by other international system participants, and as a result, other states are not interested in undermining the dominant actor.[90]

That way of reasoning was developed in the Cold War by the so-called Nuclear Warfighting School, which assumed that the U.S. security could be guaranteed only when they could win the nuclear war.[91] In the post-Cold War era, it meant that the U.S.-led international order without missile defense would be doomed to exist in the unstable unipolar system because, even though the U.S. would be the most powerful country, states that acquired WMD could deter the U.S. from imposing common rules. Only BMDS could ensure United States the so-called unidirectional deterrence: *a one-way deterrent capability that would deny other states the ability to deter the US from projection power globally*. With such capability, the United States could bring stability as its potential obligates to intervene in the unipolar system to impose common rules.[92]

Returning to the debate on domestic and international sources of BMDS, it should be noted that the main supporter of these last factors does not ignore the first ones.

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87 M. Mayer, *US Missile...*, p. 204.

88 J. Goldgeier, J. Suri, "The Urgent Need for Real National Strategy", War on the Rocks, 18 January 2016, at <http://warontherocks.com/2016/01/the-urgent-need-for-real-national-strategy/>, 31 August 2017.

89 M. Mayer, *US Missile...*, p. 204.

90 Ł. Kamieński, *Technologia...*, pp. 27, 158-159, 164-167; R. Steff, *Strategic Thinking...*, pp. 139-140. Cf. B. Roberts, "On the Strategic...", pp. 11, 19.

91 R. Steff, *Strategic Thinking...*, pp. 1-2, 23-24.

92 Ibid., p. 2.

Mayer indicates that domestic factors, although not decided on the general direction of BMDS development, shape *the scope and timing of missile defense programs*.[93]

As regards other authors, Steff also points out to the role played by factors on the international level, but only as mutually complementary with the domestic one.[94] In his case, international level is not superior, but equivalent to the domestic one, because he adopts the theory of neoclassical realism.[95] Almost all other abovementioned authors writing in the last decade on the U.S. missile defense ignore the international level variables and focus on the domestic one.

BMDS ROLES IN THE U.S. GRAND STRATEGY

In the post-Cold War era, four roles played by BMDS in the U.S. grand strategy can be indicated: (1) to dissuade, (2) to deter, (3) to defeat, and (4) to assure.[96] We can trace presents of those four missions in almost all U.S. strategic documents since the end of Cold War; even simultaneously we could observe difference of emphasis during different presidencies. Although these functions were separately described in details below, the distinction is only analytical, because in reality all four are closely linked.[97] Compared to all other functions, the most important BMDS role is to defeat, because all three others are derived from it.[98] The U.S. missile defense functions are presented below in the order corresponding to the stage at which the BMDS faces ballistic missile threat: from dissuading, through deterring and finally defeating. The last described mission – assurance – combines all the other functions.

The first BMDS role in the U.S. grand strategy is to dissuade other states from the development of ballistic missile and WMD technology.[99] As Mayer writes, *[t]argets of dissuasion are encouraged to continue refraining from behaviors perceived as undesirable by the United States, calculating that the benefits of initiating the particular action or behavior are outweighed by their costs*.[100] The development of BMDS should discourage other countries from the technology development mentioned above, because the U.S. missile defense system should make that kind of measures useless against the U.S. and its allies.[101] This role could be carried even without fully operational BMDS be-

93 M. Mayer, *US Missile...*, pp. 183-184, 204.

94 R. Steff, *Strategic Thinking...*, pp. 159-160.

95 Ibid., pp. 3, 10.

96 M. Mayer, *US Missile...*, pp. 9-10; R. Steff, *Strategic Thinking...*, p. 139; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 241, 304-312. Cf. B. Roberts, "On the Strategic...", pp. 22-23.

97 M. Mayer, *US Missile...*, p. 10.

98 Ibid., p. 186.

99 Ibid., pp. 30, 32, 38; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 306-308; R. Steff, *Strategic Thinking...*, pp. 24-25, 40; *Ballistic Missile Defense Review Report*, Washington 2010, pp. 11, 23.

100 M. Mayer, *US Missile...*, p. 31.

101 Ibid., p. 34.

cause, as the 2001 Quadrennial Defense Review (QDR) stated, *The United States can exert influence through the conduct of its research, development, test, and demonstration programs*.[102]

The dissuasion function is not only strictly interconnected with the defense role, but also with deterrence. Firstly, dissuasion precedes deterrence, and that is why it is sometimes called 'pre-deterrence'.[103] Next, dissuasion, similarly to deterrence, intends to affect other states' behavior.[104] Finally, *dissuasion ultimately hinges on the promise of eventual US deterrence of the capability or of the course of action being dissuaded*.[105]

Even though the dissuasion mission is usually associated with the U.S. adversaries, it could also refer to allies' security policy.[106] In this perspective, dissuasion is supplementary to the extended deterrence because it could reduce the U.S. allies need for own (offensive) nuclear capabilities.[107] Unlike in the case of extended deterrence, however, the United States encourages its allies to develop missile defense programs, but only if they are interoperable with that American one. Only then those non-U.S. systems could be attached to common command and control infrastructure as it is, e.g. in the case of European allies under the NATO umbrella.[108] The U.S. advancements in missile defense technology usually mean that this state dominates that kind of cooperation with allies. At the same time, the United States oppose allies' development and investment in missile defense systems which are not interoperable with the U.S. (e.g. Turkey's purchase of Russian made S-400 system).[109]

In the context of this BMDS mission, it should be noted that many analysts argue that missile defense, contrary to the way of thinking described above, does not constrain ballistic missile and WMD technology proliferation. They point out that the MD development *can also have counterproductive effects, as adversaries develop asymmetrical means of countering US military superiority or redirecting dissuaded ambitions to other efforts that prove even more harmful to US interests*.[110] In this case, the so-called second order effects concept, according to which U.S. adversaries with ballistic missile and WMD technology in response to BMDS development would focus on the increase of

[102] "Quadrennial Defense Review Report – 2001", U.S. Department of Defense, 30 September 2001, at <http://archive.defense.gov/pubs/qdr2001.pdf>, 31 August 2017.

[103] M. Mayer, *US Missile...*, p. 30; R. Steff, *Strategic Thinking...*, p. 25.

[104] M. Mayer, *US Missile...*, p. 30.

[105] Ibid., p. 31.

[106] Ibid. R. Steff, *Strategic Thinking...*, p. 140.

[107] M. Mayer, *US Missile...*, pp. 34, 140; C.D. Walton, C.S. Gray, "Druga epoka...", pp. 237-238.

[108] M. Mayer, *US Missile...*, p. 37.

[109] "Media Availability with Secretary Mattis in the Pentagon", U.S. Department of Defense, 14 July 2017, at <https://www.defense.gov/News/Transcripts/Transcript-View/Article/1248644/media-availability-with-secretary-mattis-in-the-pentagon/>, 31 August 2017; V. Insinna, "U.S. Official: If Turkey Buys Russian Systems, they Can't Plug into NATO Tech", Defense News, 16 November 2017, at <https://www.defensenews.com/digital-show-dailies/dubai-air-show/2017/11/16/us-official-if-turkey-buys-russian-systems-they-cant-plug-into-nato-tech/>, 17 November 2017.

[110] M. Mayer, *US Missile...*, p. 32.

their missile and nuclear arsenal quantity and quality (e.g., acquire MIRV technology), is introduced. That kind of vertical proliferation would be designed to make the U.S. missile defense ineffective.[111]

Official reports presented by the U.S. Department of Defense and the Intelligence Community statistically prove that this BMDS function does not effectively fulfill its role. As Mayer writes, *BMD deployment has failed to demonstrate any dissuasive effects on those countries about which the United States is most concerned* [e.g. North Korea and Iran], *including China*[112] and concludes that *the historical record suggests that an arms build-up is the more likely response* to the missile defense development.[113] It should not be a surprise to the United States, as its response to the Soviet Union missile defense program in the 1960s was the development of penetration aids (e.g. MIRV technology) even though the Moscow's MD projects could not be at that time verified unequivocally.[114]

The BMDS dissuasion mission is the only U.S. missile defense function developed after the Cold War[115] and it is strictly connected with the idea of the Second Nuclear Age. All three others were present in the debate on the United States MD also in the Cold War.

The second BMDS mission in the U.S. grand strategy is to enhance deterrence against adversaries. As stated above, in the First Nuclear Age (the Cold War), deterrence was based on the (offensive) nuclear forces (the so-called nuclear deterrence or deterrence by retaliation). In the Second Nuclear Age (the post-Cold War era), that kind of deterrence does not always have an effect, and certain actors (the so-called rogue states and e.g. terrorist organizations) could consider the use of nuclear weapons.[116] From this perspective, BMDS as the 'non-nuclear deterrence' is a supplement to the offensive nuclear deterrence.[117]

The essence of deterrence is the discouragement of the potential attacker from taking certain steps because of the consequences that may be imposed.[118] During the Cold War, the deterrence theory distinguished three types of situations based on the effectiveness of deterrence, while the success rate of deterrence was based on the rationality of the U.S. adversary. Firstly, the deterrence was easy to reach in the global nuclear struggle because the calculus was imminent. Next, it was difficult to rely on deterrence in the

111 Ibid., p. 33.

112 Ibid., p. 196. Cf. comments on nuclear programs reverse in the post-Cold War era: R. Steff, *Strategic Thinking...*, pp. 150-153.

113 M. Mayer, *US Missile...*, pp. 196-197.

114 Ibid. R. Steff, *Strategic Thinking...*, pp. 145-146.

115 M. Mayer, *US Missile...*, p. 9; R. Steff, *Strategic Thinking...*, p. 25.

116 M. Mayer, *US Missile...*, p. 15; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 303, 308-309; R. Steff, *Strategic Thinking...*, pp. 4-5.

117 M. Mayer, *US Missile...*, pp. 15, 35. Cf. *National Military Strategy*..., p. 11.

118 Ibid., p. 15. More on deterrence theory: M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 29-35.

case of limited conventional war. Finally, the most incredible deterrence was during the crisis. In the two latter cases, it was hard to figure if the deterrence would work.[119]

During the Cold War, the deterrence theory was mostly focused on full-scale nuclear war, where there was a substantial likelihood that the deterrence was efficient. The post-Cold War era reduced the risk of that threat type and gave priority to other two situations associated with deterrence.[120] However, in these two cases, it is hard to deter the adversary and deterrence became a challenge for the United States.[121]

The main reason for miscalculating in the case of nuclear deterrence in the post-Cold War era became the so-called asymmetry of stakes (or interests). The clear and vital United States' interest is the defense of its territory. Hence the so-called central/general deterrence is efficient for American adversaries. Whereas with the end of Cold War confrontation, which clearly had identified American interest in the world (containment of Communism), it is now more difficult to determine what is the U.S. interest beyond territorial defense (the so-called extended deterrence). Without an explicit adversary, in the post-Cold War era, the United States could take efforts to reduce the risk of engagement in regional conflicts and limit its commitments.[122] On the other hand, regional leaders have vital interests in their parts of the world, as compared to the limited U.S. interest results in the aforementioned asymmetry of stakes. As a result, the United States' (extended) deterrence is constrained.[123]

The asymmetry mentioned above is especially a product of what U.S. adversaries with ballistic missile and WMD technology perceive as a vital interest justifying missile attack. E.g. their strategic aim could be (1) the deterrence of United States intervention (e.g. Iraq during the first Gulf War was against American operation in Kuwait), (2) forcing U.S. allies to reduce American presence (e.g. Russian threat against hosting U.S. missile defense infrastructure by Poland), (3) the defense or ruling elite against their overthrow (e.g. Iraq during the second Gulf War or contemporary North Korean threats).[124]

In conclusion, when the asymmetry of stakes undermines U.S. deterrence based on offensive nuclear capabilities, and the adversary is ready to justify ballistic missile attack on the vital national interest ground, the U.S. missile defense supplements deterrence.[125] Of course, taking into account the contemporary BMDS features, U.S. missile defense could deter an opponent armed only with a limited number and poorly developed ballistic missiles.[126]

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119 M. Mayer, *US Missile...*, pp. 16-17; B. Roberts, "On the Strategic...", pp. 14-17.

120 M. Mayer, *US Missile...*, pp. 17, 22; B. Roberts, "On the Strategic...", pp. 14-17.

121 M. Mayer, *US Missile...*, p. 19.

122 Ibid., pp. 19-20.

123 Ibid., p. 22; B. Roberts, "On the Strategic...", p. 17.

124 M. Mayer, *US Missile...*, p. 24; B. Roberts, "On the Strategic...", pp. 14-17.

125 M. Mayer, *US Missile...*, pp. 24-25.

126 Ibid., p. 25.

BMDS deterrence takes two forms. Firstly, the United States deter the hostile state from unfriendly steps on the basis that such actions – missile attack with the WMD warheads – is going to be ineffective due to BMDS (the so called deterrence by denial).[127] Secondly, BMDS guarantees United States freedom of action as it secures American territory and armed forces, thus preventing the enemy from deterrence of the United States using ballistic missiles with WMD arsenal.[128] From this perspective, BMDS *deters the deterrent*[129] and is a *counter-deterrence* instrument.[130] As a result, due to BMDS, the United States could not only destroy launched hostile ballistic missiles, but also avoid the so-called nuclear blackmail.[131] The U.S. missile defense system also gives time and allows flexibility in choosing the means against states equipped with ballistic missiles (e.g., due to the BMDS in 2006 the U.S. was not defenseless against North Korea and could use other than preemptive strike to solve crisis).[132]

It is important to note that BMDS critics point out that this missile defense function gives the U.S. powerful capability to pressure regional adversaries; hence the crisis could easily escalate, while a hostile country being pushed into a corner could use the last resort instrument and launch a missile attack.[133] As Mayer wrote, *[p]rotected by an effective missile shield, US decision makers may have greater freedom of action to protect its interests around the globe, and in doing so may be tempted to pursue an even more aggressive interventionist strategy*.[134] Both Mayer and Czajkowski assume that it would be irresponsible for the United States because the U.S. missile defense has not been tested enough.[135]

Another line of critics of that kind of the BMDS function argues that U.S. missile defense system is perceived by Russia and China as an instrument interfering with the strategic balance. These two states view the U.S. missile defense system as an arms race element (next to e.g. nuclear, ballistic missile and space race) and modernize their offensive nuclear arsenal to, inter alia, counter BMDS capabilities.[136] Most of the observers agree that Russia certainly and China with high probability have sufficient resources and technology to build ballistic missiles capable of overcoming U.S. missile defense system.[137] As a result, BMDS development is one of the factors bringing expansion of Russian and Chinese nuclear arsenal. Hence, we observe vertical proliferation. This in

127 D.S. Yost, "Debating Security Strategies", *NATO Review*, no. 4 (2003), pp. 15-19; M. Mayer, *US Missile...*, pp. 24-25; R. Steff, *Strategic Thinking...*, p. 26.

128 M. Mayer, *US Missile...*, pp. 24-25; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 303, 308-309.

129 M. Mayer, *US Missile...*, p. 29.

130 Ibid., pp. 24-25, 27-28.

131 Ibid., p. 26.

132 Ibid., p. 28.

133 Ibid.

134 Ibid.

135 Ibid., p. 29; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 191, 244, 317.

136 M. Mayer, *US Missile...*, p. 25; R. Steff, *Strategic Thinking...*, pp. 26, 31-33, 145-146.

137 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 312-322.

turn may provoke U.S. nuclear arsenal modernization and lead to increase in the strategic stability maintenance cost.

Finally, although deterrence is focused on stopping someone from doing something, the BMDS also enables compellence – i.e. efforts designed to penalize adversary after he has taken hostile actions and aiming to force the opponent to put a stop to such a behavior. In this case, the U.S. missile defense provides protection for the armed forces imposing a penalty.[138] E.g. in 1991 after the Iraq invasion of Kuwait, BMDS in the form of the Patriot systems supported U.S. activities associated with punishing of the invader and putting an end to the occupation. In such situations, BMDS deters deterrent from deterring U.S. of taking action in response to violations.

Destroying or defeating launched ballistic missile is the third U.S. missile defense function from the perspective of the grand strategy. In this case, the BMDS dissuasion and deterrence roles failed. The defeating BMDS mission could be referring to the United States territory, its armed forces deployed around the world and even its allies and friends.[139]

In the post-Cold War era, this BMDS function works differently with groups of states with different nuclear arsenal capabilities. The first group includes countries called by Mayer as 'near-peer competitors' because they are equipped with nuclear weapons equal (Russia) or to some extent equal (China) to the United States arsenal (in terms of *the capability to conduct a large-scale ballistic missile attack on the territory of the United States*).[140] In this case, there are two reasons why the United States does not develop its MD against them. Firstly, these two countries are perceived as rational actors on international stage. In consequence, the U.S. (offensive) nuclear arsenal is sufficient to deter Russia and China, and strategic stability emerges.[141] Secondly, they have resources and technology securing their capability to break the BMDS in foreseeable future. Both Russia and China have enough warheads, diverse means of delivery, and countermeasures in reference to which the BMDS is ineffective. From this perspec-

[138] M. Mayer, *US Missile...*, p. 29; R. Steff, *Strategic Thinking...*, p. 142.

[139] M. Mayer, *US Missile...*, pp. 10, 38.

[140] Ibid., pp. 12, 25. However, it should be noted, that there is huge disproportion between, on the one hand, the US and Russia and, on the other hand, China nuclear and ballistic missile arsenals. "Nuclear Weapons: Who Has What at a Glance", Arms Control Association, at <https://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat>, 3 October 2017; E. Heginbotham et al., *The U.S.--China Military Scorecard. Forces, Geography, and the Evolving Balance of Power, 1996-2017*, Santa Monica, Calif. 2015, pp. 285-319. At the same time, even China has the second strike capability, the U.S. government is not ready to fully recognize existence of the strategic stability between two countries. M. Tsuruoka, "Nuclear Proliferation, Deterrence and Strategic Stability in East Asia", in J.F. Pilat, N.E. Busch (eds.), *Routledge Handbook of Nuclear Proliferation and Policy*, Abingdon–New York 2015, pp. 62-66; L. Saalman, "China-Russia-U.S. Strategic Stability and Missile Defense", Carnegie Europe, 31 January 2013, at <http://carnegieeurope.eu/2013/01/31/china-russia-u.s.-strategic-stability-and-missile-defense-event-3999>, 3 August 2017. Cf. *Ballistic Missile Defense Review Report...*, pp. 4-5, 34-35; *Nuclear Posture Review Report*, Washington 2010, pp. iv-vi, x-xi, 4-5, 7, 19, 28-29, 47.

[141] M. Mayer, *US Missile...*, p. 12.

tive, the U.S. missile defense could not affect the strategic stability.[142] If there is any role played by the BMDS in reference to those two states, it is the Cold War strategy to limit the U.S. losses in a nuclear confrontation, although in reference to nuclear Armageddon it is hard to make such calculations.[143]

However, some analysts and certain Russian and Chinese government officials indicate there is a secret role played by the BMDS in the United States strategy against states with (almost) equal nuclear capabilities. If the BMDS is useless when Russia and China engage its whole nuclear arsenal (e.g. in the first strike or just after the detection of the U.S. launch), the U.S. missile defense system is crucial after the majority of Russian or Chinese nuclear weapons are destroyed in the first surprise attack by the United States. As two experts wrote in the *Foreign Affairs* journal in 2006, only in the latter situation the BMDS development makes sense, because *even a relatively modest or inefficient missile defense system might well be enough to protect against any retaliatory strikes, because the devastated enemy would have so few warheads and decoys left*. From this point of view, the BMDS is a part of the U.S. efforts to 'nuclear primacy' and corresponds with the modernization of (offensive) nuclear arms.[144] Other authors, citing Russian publications, point out that the U.S. concept of conventional systems allowing strikes on global scale – the so-called Global Prompt Strike (GPS) – is also a part of 'nuclear primacy' pursuit.[145]

The above-mentioned way of reasoning has been rejected by U.S. officials and many experts.[146] Czajkowski has written at length on this issue and indicated a number of factors which ensure that the likelihood of U.S. first strike is very low because i.e.: (1) it means global nuclear catastrophe, also for the United States territory; (2) it is impossible to prepare secretly such an action and at the same time engage all available resources; (3) there is always a probability of one or more ballistic missiles armed with nuclear warhead which could escape BMDS and cause damages hardly acceptable in democratic state.[147]

BMDS has a different function in the case of states (North Korea and, probably in the future, Iran) and non-state actors lacking a comparable with the United States (offensive) nuclear weaponry. The American advantage in this case should in theory guarantee effective deterrence and in consequence we should be able to observe strategic stability. However, this is not the case due to the assumption on that kind of actors' irrationality – e.g. a nondemocratic government could treat the regime overthrow as more dangerous than nuclear confrontation, and the non-state actors are without ter-

142 Ibid.

143 Ibid., pp. 11-12; R. Steff, *Strategic Thinking...*, pp. 1-2.

144 K.A. Lieber, D.G. Press, "The Rise of U.S. Nuclear Primacy", *Foreign Affairs*, vol. 85, no. 2 (2006), p. 52; M. Mayer, *US Missile...*, pp. 12-13.

145 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 311-312.

146 M. Mayer, *US Missile...*, pp. 12-13.

147 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 312-322.

ritory and populations that could be threatened.[148] At the same time, those state and eventually non-state actors have at their disposal only a limited number of poorly developed ballistic missiles without MIRV technology and decoys. In this case, BMDS is generally sufficient to defend the U.S. territory and armed forces, as well as its allies and friends.[149]

The only real threat from this second group of actors emerges if they build a significant number of short- and medium-range missiles. Using this arsenal in the so-called salvo attack form against the U.S. armed forces and its allies, those actors could overcome the BMDS.[150]

Finally, the aim of the BMDS mission is also to assure the U.S. allies about granted security guarantees.[151] The U.S. missile defense prevents the threat and security level decomposition (the so called de-coupling) between the United States and its allies because it is designed to defend not only American soil, but also its allies' territory.[152] As a result, the BMDS could be the U.S. instrument to comply with its allied commitments in the Second Nuclear Age associated with ballistic missile technology proliferation.[153]

From this point of view, the BMDS is a supplement to the extended deterrence, because it guarantees that the United States could deter or, in case of failed deterrence, destroy hostile ballistic missile that violates American security obligations.[154] Although it is controversial, certain U.S. documents and scholars indicate that the BMDS could also reduce or even replace the U.S. dependency on nuclear deterrence within the framework of the American security commitments. E.g. before the so-called Ukrainian Crisis, the BMDS infrastructure in Europe was perceived as a tool to withdraw the U.S. nuclear warheads from this continent.[155]

In this perspective, the BMDS assurance mission rests on two mechanisms. Firstly, it defends the U.S. territory and its armed forces what gives American officials freedom of action. For example, the U.S. missile defense system facilitates domestic support, leaves time for the decision and does not limit options only to the pre-emptive strike.[156] Secondly, the BMDS is defending U.S. allies' territory, and hence their armed forces are

148 M. Mayer, *US Missile...*, pp. 12-15, 312-322; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 308-309; R. Steff, *Strategic Thinking...*, pp. 23-24, 142-143.

149 M. Mayer, *US Missile...*, pp. 12-15; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 308-309.

150 M. Mayer, *US Missile...*, pp. 12-15; M. Czajkowski, *Obrona przeciwrakietowa...*, p. 303.

151 M. Mayer, *US Missile...*, p. 34; R. Steff, *Strategic Thinking...*, p. 141. See also *Defense Strategic Guidance*, p. 2; *Quadrennial Defense Review*, pp. 16-18; *National Security Strategy*, p. 8; *National Military Strategy...*, p. 9.

152 M. Mayer, *US Missile...*, p. 34; B. Roberts, "On the Strategic...", pp. 24-25. Cf. *Quadrennial Defense Review*, p. 14.

153 M. Mayer, *US Missile...*, p. 38.

154 Ibid., p. 34; R. Steff, *Strategic Thinking...*, p. 158.

155 M. Mayer, *US Missile...*, pp. 37-38; R. Steff, *Strategic Thinking...*, pp. 143-145.

156 M. Mayer, *US Missile...*, p. 36; M. Czajkowski, *Obrona przeciwrakietowa...*, p. 301.

encouraging other states to participate in the military, diplomatic and economic coalitions lead by the United States.[157]

Although in the United States there is a long tradition of debate between theatre missile defense (TMD) and national missile defense (NMD) supporters, Czajkowski states that because of the BMDS assurance function a substantial amount of the U.S. missile defense systems is focused on TMD and not on NMD.[158] This leads us back to the statement that BMDS is a part of a broader U.S. strategy designed to support American interventions defending its dominant position in the world.

The BMDS fulfils its assurance mission also in three other ways: (1) technical collaboration on missile defense development encourages cooperation (e.g. we could observe that kind of assurance in the case of the United States and Japan, Israel or selected European NATO members); (2) common command and control missile defense system deepens partnership (e.g. BMDS integration with European allies missile defense elements under the NATO umbrella);[159] (3) the deployment of BMDS elements in particular regions ensures allies, especially in the case of permanent infrastructure (e.g. U.S. missile defense bases in Poland and Romania).[160]

CONCLUSION

In summary, it should be noted that the United States has developed specific type of missile defense. BMDS is designed against limited attacks on U.S. soil and its armed forces and allies. It is a two-layered, global, reconfigurable, open, network-centric, land-, sea-, air-, and space-based system of detecting, intercepting and commanding systems, the efficiency of which has not been fully confirmed yet.

At the same time, the U.S. missile defense is a domestically considerable social and material phenomenon, because it absorbs a large share of the U.S. R&D and modernization resources in the long-term. Simultaneously, BMDS is the most extensive missile defense program on the global scale and is assigned with the most complex functions in the U.S. strategy comparing with other states that kind programs.

In contemporary studies on the BMDS role in the U.S. strategy, we could observe the debate between domestic level factors supporters (e.g. domestic politics, strategic culture, or interest groups lobbying) and international level variables proponents (referring to the Second Nuclear Age concept).

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157 M. Mayer, *US Missile...*, p. 36; M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 306-308.

158 M. Czajkowski, *Obrona przeciwrakietowa...*, pp. 306-308.

159 M. Mayer, *US Missile...*, p. 37; R. Steff, *Strategic Thinking...*, pp. 25, 141-142.

160 M. Mayer, *US Missile...*, p. 37; C.M. Kelleher, N. Goren, N. Frierson, "Missile Defense in Europe: Progress toward an Uncertain Outcome", Center for International & Security Studies, 2 January 2017, at <http://www.cissm.umd.edu/sites/default/files/Paper%201%20-%20Missile%20Defense%20in%20Europe.pdf>, 17 October 2017.

The latter concept is associated with the bipolar system end and the emergence of unipolar (dis)order after the dissolution of the Soviet Union. In the post-Cold War era, offensive nuclear arsenal is not sufficient to deter all actors (e.g. irrational states and terrorist organizations). In this perspective, the U.S. missile defense is not an instrument of strategic destabilizations as it was in the Cold War, but is perceived as a (non-nuclear and non-offensive) supplement to the U.S. deterrence based on offensive nuclear weapons.

Only if the assumption about the United States' commitments around the world and obligation to conduct interventions in defense of them on the global scale are adopted, we will be able to understand why BMDS is a part of the American grand strategy fully. If the United States dropped their military commitments and reduced their military forces deployed around the world, the central nuclear deterrence would be efficient, because the defense of the American soil is a vital national interest and we could not observe asymmetry of stakes.

From the perspective of international level, we can distinguish four BMDS functions: dissuasion, deterrence, defense, and assurance. The most important mission is defense because all three others depend on it. Although those BMDS roles were described separately, in reality, they are all interconnected. Only dissuasion is new in the post-Cold War era.

Due to the early stage of technical development, it is hard to assess the efficacy of BMDS functions today. Contemporary benefits of this system are limited. Instead, we can observe a number of costs associated with this program. In consequence, it can be concluded at this preliminary stage that the BMDS associated costs outweighed the benefits.[161]

Two issues should be included in the cost. Firstly, for more than three decades, the BMDS has been taking a significant amount of American R&D and modernization resources. Secondly, the U.S. missile defense has proven to some extent counterproductive: instead of stabilizing international security environment, it is one of the factors destabilizing the global system by horizontal proliferation (states seek ballistic missile and WMD technology to challenge U.S. unipolar domination) and vertical proliferation (the emerging nuclear and missile arms race between the U.S. and China, and the U.S. and Russia).

Regarding BMDS benefits (i.e. efficient functions); there is no evidence that the U.S. missile defense system is successful as regards dissuasion, because of the proliferation mentioned above. At the same times, as Mayer writes, it is very hard to assess the efficiency of deterrence role played by the BMDS.[162] During the first and second Gulf Wars BMDS elements were not sufficient to deter Iraq from using ballistic mis-

[161] Mayer points out that at this stage of BMDS development we clearly observe only its financial cost, but are still waiting for materialization of all operation features, so *it is premature to judge the strategic effects of ballistic missile defenses and their impact on US strategic policy*. M. Mayer, *US Missile...*, pp. 185, 203, see also pp. 203-205.

[162] *Not only is it methodologically challenging to prove a negative – that is, arguing that something caused an attack not to happen – but it must also be conclusively demonstrated that missile defense was the principle motivating factor out of a number of possible explanations for the non-event* – ibid., p. 190.

siles against U.S. armed forces and its allies. Future development by nuclear capable or nearly nuclear capable states (North Korea and Iran) of intercontinental missiles could bring the answer if BMDS is deterring against attack on U.S. territory (however, also central deterrence by American offensive nuclear arsenal always should be taken into account in that kind cases).

There are two efficient BMDS functions. The first confirmed benefit is the fact that U.S. has developed one of the most advanced BMD systems capable of destroying few intercontinental missiles (attacking American territory) and a larger number of short- and medium-range missiles (attacking U.S. forces and allies). During the first and second Gulf Wars U.S. BMD was generally sufficient to defend U.S. forces and its allies against short- and medium-range missiles attack. Nevertheless, those U.S. BMD systems could not defend against a more sophisticated ballistic missile (e.g. with penetration aids) and against massive attack (the so-called salvo launches). The second confirmed benefit is assurance – at the same time the last BMDS function is the most promising one even it is based only on partially confirmed capabilities.

Maybe in the future, after materialization of the announced features, the cost-benefit relationship would change. Also, as a Brookings scholar wrote, *some new technology could be developed that would make defense against ballistic missiles far more lethal, cost-effective and attractive, tilting the equation to favor defense instead of offense*.[163] During the first year of Donald Trump presidency, new Ballistic Missile Defense Review is being developed with such ideas as e.g. space-based sensors.[164] The year 2017 is also marked by the debate about cyber- and electronic strikes against adversaries' ballistic missile infrastructure before the launch or just in first seconds of it (the so called 'left of launch' concept).[165] Yet it is worth remembering that *a key lesson of the past thirty-two years is that technology in the missile defense area often does not deliver on its potential – at least not as rapidly, or as inexpensively, as originally thought*.[166] In result, for now the costs of BMDS rather exceed its benefits.

[163] S. Pifer, "The Limits of U.S. Missile Defense", The Brookings Institution, 30 March 2015, at <https://www.brookings.edu/opinions/the-limits-of-u-s-missile-defense/>, 30 August 2017. Cf. B. Roberts, "On the Strategic...", p. 9.

[164] J. Judson, "A Terrestrial Strategy: Hill Presses Ground and Space Focus in Missile Defense Review", Defense News, 6 August 2017, at <https://www.defensenews.com/smr/space-missile-defense/2017/08/06/a-terrestrial-strategy-hill-presses-ground-and-space-focus-in-missile-defense-review/>, 10 August 2017. See also T. Karako (ed.), *Missile Defense and Defeat. Considerations for the New Policy Review*, Lanham 2017.

[165] R. Ellison, "Left of Launch", Missile Defense Advocacy Alliance, 16 March 2015, at <http://missiledefenseadvocacy.org/alert/3132/>, 10 August 2017; D.E. Sanger, W.J. Broad, "Trump Inherits Secret Cyberwar on North Korea", *The New York Times*, 4 March 2017, p. A1.

[166] S. Pifer, "The Limits of...".

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