

Preface: Artificial Intelligence—Why Now?

Artificial Intelligence (AI) is a broad name for simulating intelligent human behavior or creating knowledge and insights that have never existed before by using information and computer systems. This technology is important and groundbreaking; for the first time in history, software can efficiently perform abilities that traditionally have been considered exclusively human—such as understanding, reasoning, perceiving, or communicating—at low cost and on a wide scale, using various applications and having different uses. The mechanization of these human abilities creates new opportunities and influences many areas, including national security.

The realm of AI arguably is a real revolution, after having developed quite slowly for many decades and sometimes even stopping in its tracks. New hardware capabilities, as well as the availability of databases, cloud computing services, and other capabilities, have made this revolution possible, enabling what was once considered only theoretical or even impossible. This technology has enabled products and services, such as autonomous vehicles, computerized medical diagnoses, voice interaction in natural language between computers and people, planning and optimization systems, and recommendations for services and products based on previous actions.

Experts assess that AI will be able to increase the rate of economic growth; find cures for illnesses and improve health systems; enhance the efficiency and safety of transportation; encourage energy efficiency and improve the understanding of climatic phenomena; and perhaps even lead to peace-based stability in the international arena through deterrence. Experts estimate that AI will change our lives beyond recognition, when it takes control of a variety of familiar actions and enables a wide range of new capabilities and applications. Those who assess the feasibility of general AI believe that

its capabilities will exceed those of human beings in all areas. Therefore, companies and countries are racing to achieve capabilities in the field of AI, affecting both economic and international fields.

As AI moves into new domains and areas and as its potential grows, the gap will widen between those leading the race and those trailing behind. Furthermore, the field has caused a struggle for talent, knowledge, and the ability to produce value or break through new boundaries. AI, alongside the Internet of Things and big data, will create a new industrial revolution on the largest scale in history. This new revolution is visible in various services and products that have been fundamentally transformed by the use of AI.

Many countries and organizations have begun to recognize that AI is no longer a future or futuristic technology; rather it is now a fundamental need. Leaders of organizations and countries are encouraging the investment, development, and implementation of the use of AI. In some cases, this development has caused competition, and in others, it has led to a real arms race.

The security arena has felt the influence of AI applications. AI is extensively used in military applications and it affects the ability to produce or maintain military superiority. This is evident in the use of AI technologies in military intelligence, advanced robotics, cyber warfare, and cyber protection, which are now groundbreaking in their use of AI.

Israel is one of the world's leading countries in AI development. This position is manifested by the number of startup companies in Israel and by international companies establishing development centers in Israel. AI affects not only aspects of Israel's economy but also its national security. Israel, which copes with a wide range of security challenges, has relied on advanced technology for several decades to ensure and maintain its national security. In addition, given that Israel does not have many natural resources (except for a certain amount of gas), its economy is based on the high-tech industry, military exports, and other narrow areas. AI offers the ability to cope with these challenges and with future ones while it enables Israel to maintain its economic, international, and security status, and perhaps even to improve it.

Therefore, Israel should formulate a policy in the field of AI to attain these achievements and should not leave such an important and challenging area to be influenced by market forces alone. The speed of decision making

on the subject, including the scope of the resources allocated and how the field is supervised and managed is critical, given the rapid development of technology, its influence, and international competition. Thus, the State of Israel cannot afford to delay, since failure in the field may result in grave consequences and high costs.

Many have participated in formulating the materials, knowledge, and recommendations that appear in this study. However, only I, as the author, am responsible for any claim or error that appears here.

On this occasion, I would like to thank the Institute for National Security Studies (INSS) that facilitated this research and allocated the necessary resources, and especially the director, Brig. Gen. (res.) Udi Dekel, for his vast help and support for this research and its publication, out of recognition for the importance of the subject.

My thanks to the members of the professional expert committee who met for the purpose of this study, contributing their knowledge, time, and energy to this research: Mr. Uri Eliabayev, consultant in the field of AI and the founder of Machine & Deep Learning, Israel; Brig. Gen. (res.) Itai Brun, deputy director of INSS; Elisha Stoin, head of the Horizon Scanning Department in the Ministry of Intelligence; Ms. Gil Baram, research director at the Yuval Ne'eman Workshop for Science, Technology and Security, Tel Aviv University; Lt. Col. Chen Weitz, chief data officer, telecommunications branch of the IDF; Mr. Tal, head of the Data Science Group, the Prime Minister's Office; Lt. Col. Eran Dahan, head of the AI sector, Administration for the Development of Weapons and Technological Infrastructure; Dr. Shmuel Even, senior research fellow, INSS; Brig. Gen. (res.) Dr. Sasson Hadad, senior research fellow, head of the Economics and National Security Program, INSS; and Uri Friedman, intern in the Advanced Technologies and National Security Program, who helped in reviewing and consolidating material for this memorandum.

Special thanks to committee members Col. (res.) Boaz Zalmanovich, formerly head of the basic curriculum branch of the IDF Operations Division; and Dror Ben-David, the head of AI in Matrix, Ltd., who, in addition to all else, commented on versions of the memorandum and contributed greatly to improving the final document.

My thanks also go to Dr. Anat Kurz, a senior research fellow and director of research at INSS and Dr. Gallia Lindenstrauss, a senior research fellow at

INSS, who expended great effort in editing and improving this document, Dr. Ela Greenberg for the linguistic editing in English, and Ms. Noam Ran, the head of publications at INSS.

My great thanks and appreciation are given to Ms. Inbar Dolinko, the research assistant in the Advanced Technologies and National Security Program, who worked day and night in managing the work of the professional expert committee, reviewing materials, writing, and editing, and who greatly influenced the nature and content of this document. Her devoted work has contributed greatly to this study and to the work of the program in general.

Last but not least, I wish to thank my family and to Michael, my husband, who supported me during the writing of this memorandum and helped me to find time even during challenging times; and my firstborn son, Rom, who was born at the end of my work on this study. I wish with all of my heart that he grows up in a world where technology is used as little as possible for wars and as much as possible to improve the world in which we live.

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October 2020