

INTRODUCTION AND ACKNOWLEDGEMENTS

This memorandum is being submitted to readers in the middle of the Gaza War that broke out on October 7, 2023, as we were preparing for publication. Naturally, the war pushes aside academic engagement and long-term strategic issues as well. However, one of the main missions of the Institute for National Security Studies (INSS) at Tel Aviv University is precisely that, to ensure that the State of Israel prepares for the challenges it will face in all issues affecting its national security. This memorandum examines and studies what has come to be known as the “Chip War”—a titanic struggle between the United States and China for technological supremacy that has been raging for over three years around the globe and with tremendous impact on the State of Israel.

Chips—those tiny silicon microelectronic components found in every civilian or military electronic device—were mostly unknown to the general public until about three years ago. And if they were known, it was typically in some esoteric engineering context, certainly not as a geopolitical issue that was soon to become one with huge implications for national security in countries worldwide. And suddenly, like in a perfect storm, several factors came together—the internalizing in America of a major vulnerability to Chinese-made technology, the COVID-19 pandemic, Russia’s invasion of Ukraine, the climate crisis—all contributing to an unprecedented global supply chain crisis, especially the supply of chips—for the first time raising public awareness to the issue and introducing it into the public, scholarly, and strategic discourse. The chip crisis affected governments, commercial entities, and individual end-user consumers, reaching all corners of the world, suppressing and limiting the continuous supply of electronic devices, common home appliances, automobiles, infrastructure machinery, as well as critical components for smart weapon systems, thus rendering chips into the gold or crude oil of our time.

The chip crisis erupted during a unique period for me personally. My professional career began as a young researcher at the INSS (under its previous name, the Jaffee Center for Strategic Studies) at Tel Aviv University where I initiated and established a research program in an emerging, esoteric technological field that we called “information warfare.” In time, a better name, “Cyber Warfare,” replaced the cumbersome one that I had come up with for the program in 1997, and it became one of the most impactful fields of research and debate in military thought and practice. A desire to experience the tech industry in practice and not only to research it led me to seek opportunities in the high-tech market, where I ended up working for 20 years, both in Israel and abroad, almost exclusively in hardware and chip companies. I was privileged to work for companies that contributed greatly to the Israeli tech industry. Among them was the legendary M-Systems Ltd., under the leadership of the indefatigable entrepreneur Dov Moran, who was also kind enough to write a foreword for this paper. For the majority of my years in the industry, however, I worked for Valens, which grew to be the largest Israeli chip company and went public on the New York Stock Exchange two years ago.

Following Valens’ public listing, my desire to return to research and writing grew and the emerging global chip crisis provided the opportunity. As part of my work in the industry, like many others, I easily recognized the signs of a brewing crisis and was startled by its potential impact on the global economy. My early training at the INSS, as well as my experience in strategic research, aroused my curiosity and caused me to hypothesize and speculate that the consequences of the emerging crisis could go well beyond the civilian-economic sphere, influence the great power competition between the United States and China, and usher in a new area of activity in the study of strategy and national security.

I shared my thoughts with industry and INSS friends and colleagues, and they agreed these global developments could indeed affect Israel and

warrant academic research. As was the case many times in the past, the INSS correctly recognized the research potential of this innovative field and the importance of engaging with it in producing policy-oriented research. It is a great privilege that Professor Manuel Trajtenberg and Brig. Gen. (res.) Assaf Orion offered me the opportunity to return to the INSS and lead this innovative research project. I was also fortunate to receive the support of my employer, Valens. When I shared with the company's CEO, Mr. Gideon Ben-Zvi, a highly experienced veteran and entrepreneur, my desire to return to academic research, Gideon immediately saw the potential for cross-fertilization between the industry and research institutes and academia and gave me a sabbatical year, which is unprecedented, as far as I know, in Israeli industry. I am deeply grateful for this unique opportunity, and this memorandum you are holding is the fruit of this research work.

It is my duty and pleasure to thank several people whose contribution to the process was enormous. First and foremost, I would like to thank my partner, Lt. Col. T. Z., a principled and meticulous IDF officer with whom I became acquainted during a research sabbatical that he took. T.Z.'s contribution to this study cannot be overstated. Work with Lt. Col. T.Z. was born out of a collaboration between the INSS and the IDF, a commendable initiative to carry out joint research studies between academic bodies such as the INSS and IDF officers. It should be emphasized that T.Z.'s contribution was only to the academic aspects of the study; I formulated the policy recommendations separately, and they are solely my responsibility. I hope that this paper will serve as a prototype for collaborations in other emerging fields of research.

I would like to thank the Executive Director of the INSS, Prof. Manuel Trajtenberg, for inviting me to the INSS and providing me with an outstanding organizational framework and a home for conducting this research. I am equally thankful to the Managing Director of the INSS, Major General (res.) Tamir Hayman, for the confidence, support, and advancement of my research. I owe an enormous debt to Brig. Gen. (res.) Assaf Orion, Director of the Glazer

Israel-China Policy Center at the INSS. Assaf and the group became my academic mainstay and a central part of my life. Assaf proved to be a tireless source of fuel, driving and pushing me to deepen the research, to verify, improve, correct, clarify, be precise, and to validate and verify every figure, statement, and conclusion. Research requires access to information sources, gathering, cataloging, and analyzing them. I would like to thank the INSS's information center under the leadership of Mr. Yoel Kozak, who manages a well-oiled machine for gathering and distributing raw data. To state the obvious, every academic study is based on the knowledge accumulated from previous research and generations. As Sir Isaac Newton famously said, if I have seen further, it is by standing upon the shoulders of giants—in my case, giants that spent decades researching Israel's security and the practice of developing its tech industry.

From the bottom of my heart, I wish to thank the wonderful staff of researchers of the Glazer Center—the late Ambassador Dr. Oded Eran who contributed greatly to this study and passed away after its completion, Deputy Director of the Glazer Center Ms. Galia Lavi, Lt. Col (Res) Shahar Eilam, Dr. Ori Sela, Dr. Doron Ella, Dr. Tomer Fadlon, Mr. Tuvia Gering, Adv. Ofer Granot, and Dr. Shira Efron—from whom I learned so much and who have all helped more than this space allows to describe. Further thanks to the researchers of the INSS who helped with characterization, guidance, analyses, reading, discussion, critique, and corrections. I would like to acknowledge and thank the INSS's Director of Research Dr. Anat Kurz, a colleague and dear friend for over 25 years, Dr. Gallia Lindenstrauss, Dr. Carmit Valensi, Col. (res.) Pnina Sharvit Baruch, MK Ofer Shelah, Ms. Inbar Noy-Freifeld, and Dr. Liran Antebi. I would like to mention the late Dr. Emily Landau who, even when seriously ill, brainstormed with me about the ways I could fulfill my research aspirations. Warm thanks go to Professor (Emeritus) Ashok Agrawala, whom I was privileged to have as a doctoral supervisor. I learned so much from him and am grateful for the lifelong friendship that endured for nearly three decades. I wish you

good health and longevity. Many thanks also to the former director of the Mossad, Mr. Tamir Pardo, for writing a foreword for this memorandum. It is impossible to conduct any study without research assistants, students, and interns. I had the privilege of working with a wonderful team of research assistants—Roy Ben Tzur, Ofir Dayan, and Ofir Munz—as well as intern Adv. Tzachi Shachar, who also contributed and wrote the case study that appears in this study. The INSS does not only research Israel's security, and its staff and researchers are not locked in the ivory tower of academia but are active partners in the burden and sometimes pay the heaviest price. Here I would also like to especially mention two staff members of the INSS, Dr. Mora Deitch, whose husband fell in battle in Gaza, as well as Lt. Gen. (ret.) Gadi Eisenkot, former IDF chief of staff and a former INSS researcher, who lost his son in Gaza.

I would also like to thank leading individuals in academia, defense, government, and industry who helped with the study, cooperated, and contributed their time, energy, and wisdom. In this context I would like to mention Prof. Major General (res.) Isaac Ben-Israel, Mr. Aharon Aharon, Mr. Dov Moran, Mr. Eyal Waldman, whose daughter Danielle and her partner were murdered at the Nova party on October 7th, Dr. Doron Meyersdorf, Mr. Mooly Eden, Ms. Yael Rosenberg, and Mr. Dudi Galanti.

A final thanks I send to my dearest and beloved family Karin, Yahel, Nadav, and Alma, for being infinitely accommodating.

The contribution of all of those mentioned above was great and significant. On behalf of myself and Lt. Col. T.Z., I thank all of you from the bottom of my heart and greatly appreciate your help and contribution. I apologize in advance for any name that I might have forgotten to mention. And a final point—any mistake or error that may have occurred is solely my responsibility.

Ariel Sobelman, December 2023

