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*Hammer & Silicon: The Soviet  
Diaspora in the US Innovation  
Economy*

Immigration, Innovation, Institutions, Imprinting,  
and Identity

This deeply personal book tells the untold story of the significant contributions of technical professionals from the former Soviet Union to the US innovation economy, particularly in the sectors of software, social media, biotechnology, and medicine. Drawing upon in-depth interviews, it channels the voices and stories of more than 150 professionals who emigrated from 11 of the 15 former Soviet republics between the 1970s and 2015, and who currently work in the innovation hubs of Silicon Valley and Boston-Cambridge. Using the social science theories of institutions, imprinting, and identity, the authors analyze the political, social, economic, and educational forces that have characterized Soviet immigration over the past 40 years, showing how the particularities of the Soviet context may have benefited or challenged interviewees' work and social lives. The resulting mosaic of perspectives provides valuable insight into the impact of immigration on US economic development, specifically in high technology and innovation.

**Sheila M. Puffer** is University Distinguished Professor and Professor of International Business and Strategy at the D'Amore-McKim School of Business, Northeastern University, Boston, USA. She served as Program Director of the Gorbachev Foundation of North America, and is an Associate at the Davis Center for Russian and Eurasian Studies at Harvard University. Business and management in the former USSR are a major focus of her 160 publications, including *Behind the Factory Walls: Decision Making in Soviet and US Enterprises*.

**Daniel J. McCarthy** is University Distinguished Professor and the Alan S. McKim and Richard A. D'Amore Distinguished Professor of Global Management and Innovation at the D'Amore-McKim School of Business, Northeastern University, Boston, USA. He is also an Associate at the Davis

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Center for Russian and Eurasian Studies at Harvard University. He has over 110 publications, including four editions of *Business Policy and Strategy*, as well as *Business and Management in Russia*, *The Russian Capitalist Experiment*, and *Corporate Governance in Russia*.

**Daniel M. Satinsky** is an attorney, business consultant, and independent scholar, and an Associate at the Davis Center for Russian and Eurasian Studies at Harvard University. He served as Board President of the US-Russia Chamber of Commerce of New England, Inc., from 2001 to 2016. He is editor of the *Buyer's Guide to the Russian IT Outsourcing Industry* and author of *Industrial Giants, Entrepreneurs, and Regional Government: The Changing Business Environment in Yaroslavl' Oblast, 1990–1999*, amongst other publications.

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# Hammer & Silicon: The Soviet Diaspora in the US Innovation Economy

Immigration, Innovation, Institutions,  
Imprinting, and Identity

SHEILA M. PUFFER

*D'Amore-McKim School of Business, Northeastern University*

DANIEL J. MCCARTHY

*D'Amore-McKim School of Business, Northeastern University*

DANIEL M. SATINSKY

*Business Consultant and Independent Scholar*



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*To the 157 interviewees and their families who made the bold journey to the United States, and to the legions of others like them from all corners of the world. – With admiration from the authors*

*To my family – Douglas and Annika, Carol and Dorian, all of whose parents include immigrants. – SMP*

*To my family for their enduring love and support. – DJM*

*To my wife, Dinah, for her patience, encouragement, and support through the years. – DMS*

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## Foreword

*Hammer & Silicon* is a model of social science research, but its subject matter would also make for a great novel. The book juxtaposes two places that are literally “worlds apart:” the Soviet communist regime during its decline, collapse, and subsequent disintegration (the Hammer) and the dynamic regions of entrepreneurship and innovation that emerged at roughly the same time in the US (the Silicon). The protagonists of this unlikely collision – and the focus of this fascinating book – are the highly educated scientists and engineers who left the Soviet Union and settled in Silicon Valley and the Boston-Cambridge areas in the late twentieth and early twenty-first centuries.

The book’s authors, all established scholars of Russian studies, interviewed 157 members of the Soviet diaspora. The interview results provide a rich tapestry of individual trajectories that differ due to ethnic, cultural, and family circumstances, but nevertheless accumulate to illuminate strong cross-cutting themes at the core of the book. We learn that the earliest Soviet immigrants to the US beginning in the 1970s were refugees escaping virulent anti-Semitism, or, in later years, the economic dislocations following the collapse of the Soviet Union. Only more recently have Russian-speaking immigrants come to the US seeking additional education and/or economic opportunity. This latter wave has more in common with the Asian immigrants who typically come to the US for higher education, and then stay on to work in fast-growing technology regions.

Some of the most engaging parts of the book are the first-hand accounts, mostly in the words of immigrants themselves, of the experience of being raised in the former Soviet Union (with its authoritarian and bureaucratic institutions, pervasive dissembling and cynicism, distrust of business, and highly personalized trust) and adapting to the US and to technology centers (where entrepreneurship is a social good and work is organized around teams, collaboration,

open exchange, customer service, and generalized trust). *Hammer & Silicon* details the challenges these immigrants face adapting to a new language and unfamiliar institutions while also redefining their own identities. The book's theoretical contributions lie in a systematic analysis of the role of institutions, imprinting, and identity formation in the immigration process. This is the most sophisticated work I've seen on the experience of highly educated immigrants making the transition between such different worlds.

The authors argue convincingly that while the Russian-speaking community in the US is smaller than the more visible Chinese and Indian diasporas, their impact has been disproportionate because they represent the “best and brightest” mathematicians, physicists, chemists, biologists, and engineers from the former Soviet Union. Their evidence makes it clear that Russian-speaking immigrants, like their Asian counterparts, have been a source of considerable talent, creativity, and entrepreneurial capability for the US economy. They have started profitable businesses and they work in leading American universities, medical centers, and multinational companies.

In my work I refer to the highly educated immigrants to Silicon Valley as the “New Argonauts”—an allusion to the ancient Greek myth of Jason and the Argonauts, who sailed in search of the Golden Fleece, testing their mythic heroism while seeking earthly riches and glory. These journeys, like those of their Russian-speaking counterparts, were only possible because of the opening of national borders to increased global migration in the post World War II era. The strong lesson of this book is that closing US borders to highly educated immigrants is short-sighted and likely self-defeating. Highly skilled immigrants are essential contributors to the entrepreneurial and technological dynamism that distinguish the US economy today.

Another important policy lesson from this book is for places aspiring to participate in global technology networks. The new Argonauts—whether from Russia, China, India, Israel, or Taiwan—succeed in large part because of investments by their home countries in world-class science and engineering institutions. Elite higher education may be available only to a small segment of the youth in these countries, but those who have access to it, and are willing to take the risks of migration, can ultimately benefit not only themselves and the US, but also their home countries. Building a high-quality educational

infrastructure takes decades, but the alternative for any country is to fall further behind in the global economy.

*Hammer & Silicon* doesn't dwell on this, but the book provides ample evidence that the Russian-speaking Argonauts have become part of an international technical community that circulates among dynamic regions in the US, Asia, and Europe. Soviet diaspora members have seeded technology activity in Ukraine, Russia, Lithuania, Romania, Armenia, Estonia, and others, providing employment, technical know-how, advice, funding, and other opportunities for their home-country counterparts. In short, the mobility of highly educated workers—which depends on keeping national borders open—provides benefits to regions around the world. Even places that seem as unlikely as the former Soviet Union.

AnnaLee Saxenian  
Dean and Professor, School of Information  
Professor, Department of City and Regional Planning  
University of California, Berkeley

## *Acknowledgments*

We begin our acknowledgments by recognizing that we owe a huge debt to the eminent scholars whose work has informed our own over the past several decades. Among them are the legendary Sovietologists Joseph Berliner, Abram Bergson, and Marshall Goldman, who were regular attendees at the Economics Luncheon Seminar organized at Harvard University's Davis Center for Russian and Eurasian Studies where we three authors continue to be Center Associates. We have learned a great deal from them as well as from the dozens of scholars who presented their work there over the past three decades. We also owe a tremendous debt to Loren Graham of MIT and Irina Dezhina of Skolkovo Institute of Science and Technology for their work on Soviet science and the 1990s brain drain from that country.

As with any successful book project, beyond the authors and, in this case, even beyond the interviewees, there were numerous contributors who in various ways played key roles in the successful completion of this book. We acknowledge here the many individuals, groups, and institutions that played important roles for which we authors are extremely grateful while recognizing that the responsibility for the book's content remains with us.

We first thank the team of transcribers of the 157 interviews, the major transcribers being Northeastern University research assistants Ryan Donohue and Jacklyn Gronau, as well as professional transcriber Daina Krumins. Other Northeastern students who provided transcription services were Veronique Falkovich, Lily Gacicia, Ruth Leifer, Alina Samarova, and Rachael Volpert. Ryan Donohue also provided the majority of research assistance involved with analyzing transcripts, while other Northeastern students, Jacklyn Gronau and Rohit Kogta, provided additional assistance. D'Amore-McKim School of Business staff members who provided administrative support were Jenny (Evgeniia) Bagnyuk, Magda Drici, Michael Marafitte, Grace

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In addition to the many interviewees who provided referrals to other interviewees, we would like to especially thank Anna Dvornikova, Maria Eliseeva, and Evgeny Zaytsev, who provided referrals to numerous interviewees, as well as Kate Carleton, Walter Chick, Ivan Correia, Douglas Fraser, Ingrid Larsson, Peter Larsson, Bob Nelson, Lindsey Sudbury, Martina Werner, and Maury Wood. We also thank others who provided background insights based on their association with technical professionals both in the United States and in the former USSR. They are Dmitry Dakhnovsky, Ekaterina Evstrateyva, Tatiana Fedorova, Richard Golob, Alexander Ivanov, Julia Ivy, Anna Lamin, Peter Loukianoff, Tatiana Lysenko, Mykola Lysetskiy, Katia Epshteyn Ostrovsky, Olga Rodstein, Maxim Russkikh, Paul Santinelli, Amir Sharif, Joel Schwartz, and Vera Shokina. We are also indebted to those who provided ideas and insights for the book title and cover design: Ralph Dinneen, Annika Fraser, Douglas Fraser, Liane Middleton, Marlene Puffer, and Maury Wood, and we gratefully acknowledge Carol Fraser and Dorian Scheidt for creating the map of interviewees' birthplaces.

We would also like to acknowledge that our work was facilitated by attending and networking at events and conferences sponsored by various organizations and associations, including the American Business Association of Russian-Speaking Professionals (AmBAR), the Global Technology Symposium, the Davis Center for Russian and Eurasian Studies at Harvard University, New England Russian-Speaking Entrepreneurs (NERSE), Silicon Valley Open Doors, the US–Russia Business Council, and the US–Russia Chamber of Commerce of New England.

We extend our deepest and most heartfelt thanks to the 157 people who devoted their valuable time to be interviewed, usually for one to two hours and sometimes longer. We owe a great debt to them for their willingness to trust us, to answer our specific questions, and to share their stories candidly and willingly. Additionally, we thank them for having done so in English rather than in their native languages. We hope the interview experience was valuable for our interviewees, perhaps giving them an opportunity to reflect on their lives and gain insights and perspectives about themselves. As interviewee Alexei Masterov said: “I feel like I’m learning something about myself in the process of this conversation because I never spoke about it this way, especially in English. So it’s interesting.” We also hope that the interviewees gain insights not only from reflecting on their own experiences, but also from the shared experiences of all 157 interviewees included in this book, and that they can appreciate the commonalities and differences among their compatriots who shared having been born in the former Soviet Union before becoming contributors to the US innovation economy.

We would, of course, be remiss without thanking the Cambridge University Press team that shepherded our manuscript to successful completion, including Valerie Appleby, Commissioning Editor for Business and Management, Assistant Commissioning Editor Stephen Acerra, Editorial Assistants Kristina Deusch and Toby Ginsberg, Marketing Executive Ellena Moriarty, Project Manager Sunantha Ramamoorthy, and Content Manager Bronte Rawlings, as well as others who reviewed and approved our book proposal and worked on various aspects of the production and marketing phases to ensure the quality of our product and its dissemination to institutions and individuals.

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## *About the Authors*

**Sheila M. Puffer** is University Distinguished Professor and Professor of International Business and Strategy at the D'Amore-McKim School of Business, Northeastern University, Boston. She is also an Associate at the Davis Center for Russian and Eurasian Studies at Harvard University. In 2015, she was a visiting research professor at the Graduate School of Business at Stanford University where she interviewed Silicon Valley entrepreneurs and other professionals from the former Soviet Union about their contributions to the US innovation economy. Dr. Puffer has more than 160 publications, including eighty refereed articles and eleven books. She has been recognized as the leading scholar internationally in business and management in Russia, the former Soviet Union, and Eastern Europe according to a 2005 *Journal of International Business Studies* article. She also ranks as the most published author (tied with coauthor D. McCarthy) in the *Journal of World Business* from 1993 to 2003. She has been ranked in the top 5 percent of authors worldwide who published in the leading international business journals from 1996 to 2005, according to a Michigan State University study. She is fluent in French and Russian. She earned a diploma from the executive management program at the Plekhanov Institute of the National Economy in Moscow, and she holds a BA (Slavic Studies) and an MBA from the University of Ottawa, Canada, and a PhD in business administration from the University of California, Berkeley.

**Daniel J. McCarthy** is University Distinguished Professor and the Alan S. McKim and Richard A. D'Amore Distinguished Professor of Global Management and Innovation at the D'Amore-McKim School of Business, Northeastern University, Boston, and is also an Associate at the Davis Center for Russian and Eurasian Studies at Harvard University. He is cofounder, codirector, and chair of the strategy advisory council of Northeastern's Center for Entrepreneurship Education. Additionally, he is cofounder of

the Northeastern University Venture Mentoring Network and a member of the steering committee, as well as a board member for IDEA, the Northeastern University Venture Accelerator. Dr. McCarthy has more than 110 publications, including four editions of *Business Policy and Strategy*, as well as *Business and Management in Russia*, *The Russian Capitalist Experiment*, and *Corporate Governance in Russia*. He served as the lead director of Clean Harbors, Inc., a multibillion dollar NYSE-listed company, and has consulted in North America and Europe for more than forty companies. Early in his career, he was cofounder and president of a public company, Computer Environments Corporation, and served as a director on its board and also on the board of its sister public company, Time Share Corporation, as well as on a number of private company and nonprofit boards. Dr. McCarthy ranks as the most published author (tied with coauthor S. Puffer) in the *Journal of World Business* from 1993 to 2003, and he has been ranked in the top 5 percent of all authors worldwide who published in the leading international business journals from 1996 to 2005, according to a Michigan State University study. He is also one of the top three scholars internationally in business and management in Russia and Central and Eastern Europe, based on a *Journal of International Business Studies* article analyzing publications in thirteen leading journals from 1986 to 2003. Professor McCarthy holds AB and MBA degrees from Dartmouth College and the Tuck School of Business, and a DBA from Harvard University.

**Daniel M. Satinsky** is a business consultant and independent scholar. For more than twenty years, he has provided market entry and commercialization services to Russian and US technology companies. In this capacity, he has traveled extensively throughout Russia and the former Soviet Union. He has also written and spoken on topics related to business, innovation, and technology. Selected publications include *Industrial Giants, Entrepreneurs and Regional Government – The Changing Business Environment in the Yaroslavl’ Oblast 1991–98*; he is coauthor of a New York Academy of Sciences study of worldwide innovation best practices and their application to Russia, *Yaroslavl Roadmap 10–15-20*, and editor of *Buyer’s Guide to the Russian IT Outsourcing Industry*. He served as President of the Board of the US–Russia Chamber of



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*About the Authors*

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Commerce of New England for more than fifteen years, and is an Associate at the Davis Center for Russian and Eurasian Studies at Harvard University. He holds a Master of Law and Diplomacy degree from the Fletcher School of Law & Diplomacy at Tufts University, a JD from Northeastern University Law School, and a BA from James Madison College of Michigan State University.

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**Map 1** Birthplaces of Interviewees in the Former USSR

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**Map 2** Birthplaces of Interviewees: Detail of the Western Region of the Former USSR

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