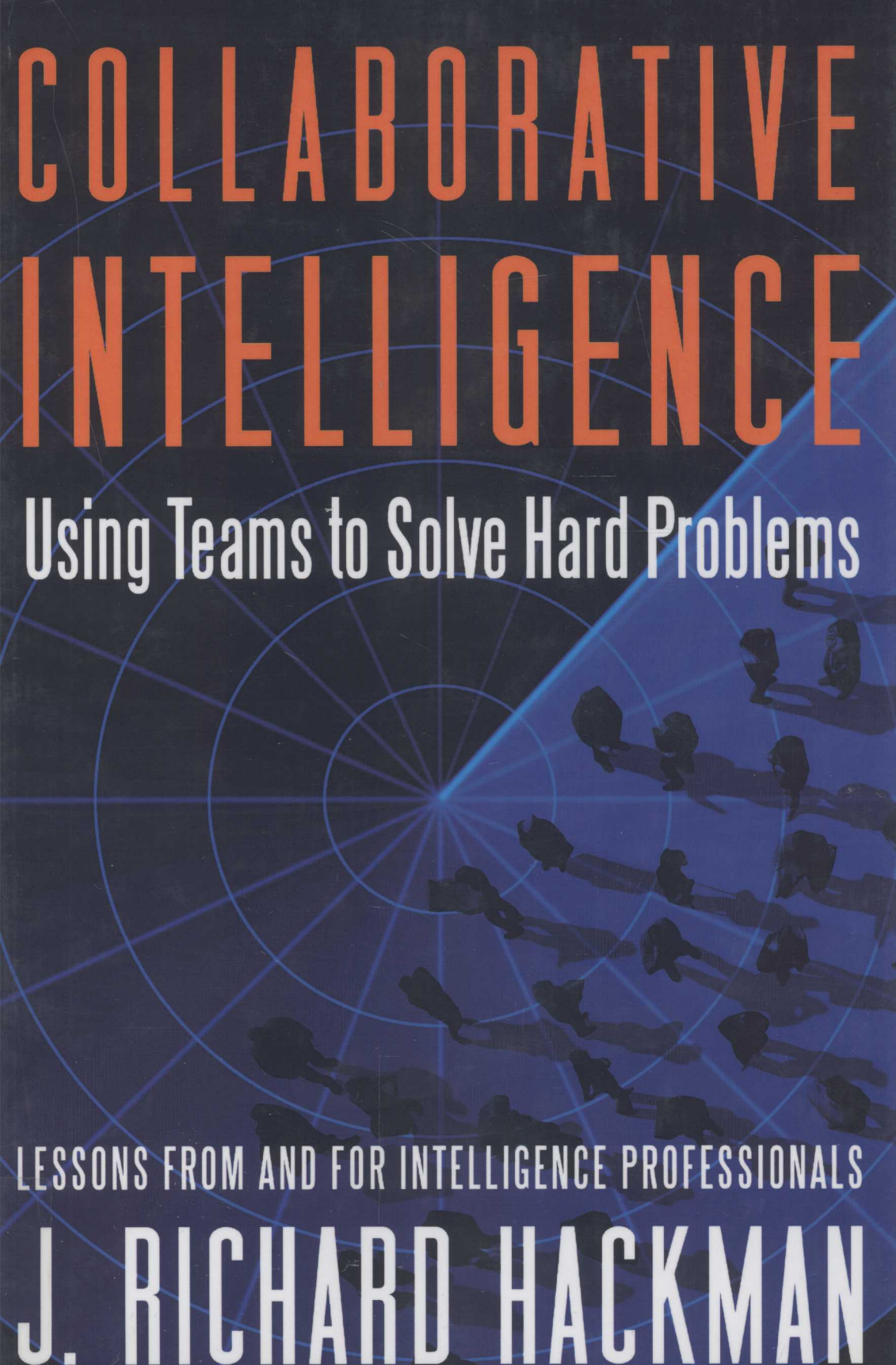# COLLABORATIVE INTELLIGENCE

Using Teams to Solve Hard Problems

LESSONS FROM AND FOR INTELLIGENCE PROFESSIONALS

J. RICHARD HACKMAN

COLLABORATIVE INTELLIGENCE

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COLLABORATIVE INTELLIGENCE

For Fred Ambrose

PREFACE

It was not an altogether comfortable meeting. My colleagues and I were huddled with our government sponsor to review progress on what we had come to call the "Group Brain" research project. We had completed a number of studies that explored some provocative parallels between brains (which are systems of interdependent neural modules) and groups (which are systems of interdependent members). The findings so far were intriguing, but we had not yet found a way to bring what we were learning to bear on the problem that most interested our sponsor—namely, how best to design and lead the diversity of teams that operate within the U.S. intelligence community.

Then Stephen Kosslyn, a cognitive neuroscientist and co–principal investigator on the Group Brain project, had an idea: "What if Richard wrote a short book that would draw out the implications of our findings specifically for intelligence teams?" he asked. He went on to point out that it could easily be completed within a year and then distributed widely throughout the community. It would be just what we needed—a bridge between scholarly research and leadership practice. Our sponsor thought that was a splendid idea, and everyone looked forward to reading what I would write.

That was four years ago. Writing the book became a rather more involved and interesting undertaking than any of us had imagined, as both the range of teams discussed and the book's intended audience expanded considerably. For example, the book now incorporates material about other kinds of teams—such as athletic teams, flight-deck crews, healthcare teams, and even musical ensembles—whose work, like that of intelligence teams, can be far from routine. So what started as a short set of research-based guidelines *for* the intelligence commu-

nity evolved into a book that also draws lessons *from* the intelligence community—specifically for those who lead or serve on any team that has to deal with hard problems in a challenging context.

Who the Book Is For

The book was written with intelligence, defense, crisis management, and law enforcement readers in mind, including both experienced and novice team leaders and members. Although this is not a textbook, instructors in national security and law enforcement training organizations will find here material that may be useful in their courses. The book also should be informative to readers who create, lead, or serve on decision-making, production, or service teams in government, the private sector, or nonprofit enterprises. Finally, I hope the book will be of interest to general readers who would like to learn a little about the "backstage" of collaboration in the intelligence and national security communities.

This book therefore can be viewed as a follow-on to my earlier book, *Leading Teams*, which was published almost a decade ago. A great deal of research on teams has been done since then, and the findings from that research are incorporated here. Recent studies have shown, for example, that the context within which a work team operates is enormously consequential for team behavior and performance. The intelligence community assuredly provides a unique (and often challenging) context for teamwork, and this book gives special attention to what is needed for teams to thrive in such contexts.

I have tried to create a book that will be as interesting and accessible to non-technical readers as it is to those who have experience and expertise working with teams. Although my main aspiration has been to provide guidance that will be useful to team leaders and members, there are no "one minute" prescriptions here—creating, leading, and serving on teams is not that simple. But neither are there excursions into the kinds of arcane theoretical issues that are of interest only to those of us whose day jobs involve intense study of individual and group dynamics. That is a narrow beam on which to balance, and I have tried hard not to fall off in either direction.

Keeping Secrets

No individual is identified by name in the book, except those whose remarks are on the record or for which it is possible to cite a publicly available source. Nor do I identify by name either specific teams or specific organizational units. If I were to provide more details than I do, then some insiders might be able figure out who and what I am describing. That general problem with research confidentiality is especially salient here since the readers of this book will include people who make their living drawing conclusions from sketchy data.

It has been necessary, therefore, to disguise some individuals, settings, and events. My intent has been to alter only details that are of no consequence for the interpretation of the material, but that is a judgment call, and I occasionally may have unknowingly changed something that actually is significant. Readers can be assured, however, that I have taken care never to offer up what my late colleague Brendan Maher liked to call an Irish Truth: "Something that, although not actually true, is required to sustain the narrative."

Who Helped

Foremost among the many people who helped strengthen this book is Fred Ambrose, the intelligence community veteran with whom we had our difficult conversation four years ago, and to whom the book is dedicated. Fred provided both intellectual and financial support for much of the research discussed here. Although proudly an engineer by disposition and training, Fred has one of the most facile and wide-ranging intellects I have ever encountered. You never know what is in store when Fred starts to talk—a culinary innovation he has developed, or what can be learned about current international relations from some obscure 19th-century war, or a technological twist that solves a problem long thought to be intractable. But for all his intellectual exploring, Fred always finds his way back to his primary commitment—using his special gifts whenever and however he can to serve his country. Working with Fred has been an education and an inspiration.

Other members of the intelligence community also gave generously

of their time and expertise, including James Bruce, Denis Clift, Joseph Hayes, Robert Herd, Rob Johnston, Mark Lowenthal, Michael Mears, Richard Rees, Steven Rieber, Jim Simon, Michael Sulik, and many others. Their comments and suggestions have been especially valuable in deepening my understanding of clandestine operational teams, since my own involvement with the community has been mainly with analytic, science and technology, and leadership teams. Special thanks are due John Phillips, Chief Scientist at the Central Intelligence Agency (CIA); and Tony Oettinger, Chair of the Intelligence Science Board (ISB). Interactions with colleagues in the Chief Scientist's Office and on the ISB provided a continuous flow of ideas and perspectives that greatly enriched my understanding of teamwork in intelligence.

Professionals at the MITRE Corporation provided invaluable assistance in both the data gathering and the writing phases of this project. They include Beth Ahern, Craig Cook, Ann Lewis, Michael O'Connor, Beatrice Oshika, Frank Stech, and, especially, Margaret MacDonald, whose sharp editorial pencil both smoothed the flow of the manuscript and purged from it the many errors and ambiguities that somehow crept in.

I am greatly indebted to my colleagues in Harvard's Group Brain research program, especially Stephen Kosslyn, who was co–principal investigator, and Anita Woolley, who started as a post-doctoral fellow and then, as project manager, provided superb scientific leadership to us all. Other researchers who contributed to Group Brain studies discussed in this book include Sean Bennett, Heather Caruso, Christopher Chabris, Colin Fisher, Margaret Gerbasi, Thomas Jerde, Melissa Liebert, and Jonathan Schuldt. Both the Group Brain research activities and the writing of this book were supported in part by Grant 0106070 from the National Science Foundation to Harvard University and by the CIA's Intelligence Technology Innovation Center.

Exchanges with my colleagues Mahzarin Banaji, R. Bhaskar, Robert Fein, Phil Heymann, Sujin Jang, Scott Snook, and Ruth Wageman, as well as discussions with members of our informal "GroupsGroup" research seminar at Harvard, have been invaluable in sharpening and extending the ideas discussed here. I also am indebted to Dave Bushy, who kept my analyses of team processes in aviation grounded in reality; to Sanden Averett and Christopher Dial, whose ability to

locate even the most obscure research reports continues to amaze me; and to those colleagues-at-a-distance who provided insightful and constructive reviews of the manuscript, including Lynn Eden, Phil Mirvis, Renee Tynan, Jim Wylde, and several anonymous reviewers.

Finally, my heartfelt thanks to my family—Judith, Beth, Trex, Laura, Matt, Catherine, Lauren, Edward, and Mattox—for their support and patience, especially when they did not realize that they were providing exactly what I most needed. But I realized it, and I appreciate it more than I can say.

J. Richard Hackman
November, 2010

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The Challenge and Potential of Teams

I ntelligence professionals commonly are viewed as solo operators. Here is an analyst, alone in a cubicle at Langley, calling up images and reports on a secure computer, consulting historical materials on the cubicle shelf, thinking deeply about the implications of ambiguous but worrisome recent developments. There is an undercover officer making seemingly casual social contacts overseas to identify locals who might have access to useful information—and then inducing the most promising of them to share what they know or can find out. And down there is a clandestine service trainee, straining to acquire the knowledge and skills of the trade, worried about washing out, unsure about having what it takes for a successful career in intelligence.

Engaging images such as these are the stuff of spy novels and movies. They sometimes even are accurate. But that's not how it generally happens. Although there are indeed many heroic individuals in the intelligence community, most intelligence work actually involves extensive and intensive collaboration with others—with colleagues in the intelligence community to be sure, but also with outsiders such as people from other government agencies, academic researchers, and employees of private-sector organizations.

The analyst activates a network of contacts both inside and outside government for ideas about what those worrisome developments might portend. The clandestine officer works with a team to cultivate and exploit sources of information. Even in training—which is still more individually focused than real intelligence work—instructors are discovering the pedagogical power of team exercises in which trainees may learn as much from teammates as from their teachers. So we have

across the intelligence community fusion teams, training teams, special activities teams, networked collaborations, management teams, scientific teams, and more. Moreover, as electronic technologies for communication and coordination become more powerful and pervasive, teamwork-at-a-distance is becoming more the rule than the exception. Teams are everywhere in the community, and they make a difference.

Teams have great potential for solving hard problems in challenging contexts. They obviously bring more knowledge, skill, and experience to the work than any single individual could. They provide flexibility in how members are deployed. They offer members nonstop opportunities for real-time learning. And they have at least the potential of integrating members' diverse contributions into a creative product that is just what is needed. Yet, as an extensive body of research has documented, teams also can go badly wrong, spinning their wheels and not even finishing their work or, perhaps, falling into a syndrome known as "groupthink," which results in a true fiasco. A team is akin to an audio amplifier: whatever comes in, be it Mozart or ear-grating static, comes out louder.[1]

What Helps and What Gets in the Way

The intelligence community has more than its share of unique features, some of which facilitate collaboration and teamwork, and others that get in the way. For starters, the people who work in U.S. intelligence organizations are, as a group, extraordinarily talented. In 2008, for example, the CIA received over 120,000 online job applications, and offered positions to only the very best candidates.[2] But it's not just the raw talent of intelligence analysts, operations officers, and technologists that is impressive, it is also their deep personal commitment to public service. I've been involved with the community for over a decade now, both as a researcher and in an advisory capacity, and it is not an exaggeration to say that I am in awe of the dedication of most of the intelligence professionals I have encountered. Again and again I have spoken with people who could make much more money and have much more time for personal pursuits in the private sector—but who stay where they are because of their commitment to what they are doing. They know that their work contributes directly to the security

of the nation and to the well-being of their fellow citizens. Indeed, a community-wide employee climate survey published in 2007 showed that almost 90 percent of the respondents affirm the importance of their work and, moreover, their satisfaction with their coworkers.[3]

Intelligence community leaders do not have much reason to worry, therefore, about the dedication or smarts of the people who do intelligence work. Arranging things so the work can be accomplished efficiently and well, however, is another story. Virtually all organizations in the intelligence community are large bureaucracies, and one does not need a doctorate in sociology to know that bureaucratic policies and practices sometimes frustrate even the most capable and best-intentioned employees. Worse, the intelligence community is not just a large bureaucracy, it is a whole *set* of them, linked together in sometimes-hard-to-fathom ways. When you have an intelligence budget that exceeds $80 billion, more than 850,000 professionals holding top secret clearances, and a workforce that is distributed across nearly 50 government organizations and 2,000 private companies, management is, to say the least, a significant challenge.[4] So it is perhaps not surprising that only about 40 percent of the respondents to the climate survey reported that their leaders engender motivation and commitment in the workplace, or that good work is recognized and reinforced. Even fewer respondents felt that appropriate steps are taken to deal with poor performers.

Secrecy also poses significant problems in getting intelligence work done. Although absolutely essential for some intelligence activities, the need for secrecy has spawned a labyrinth of compartments and such a pervasive disposition to classify materials that it sometimes can be nearly impossible for intelligence professionals to obtain the information they need for their work. And there is the difficulty of navigating between being too responsive to what policymakers want to hear (and thereby becoming politicized) and being insufficiently responsive to their needs (and thereby becoming irrelevant).[5]

And then there is the *external* context of intelligence work. On one side are our adversaries, including non-state entities whose technological and scientific sophistication presents analytic and operational challenges beyond anything that the community has had to deal with before. On the other side, *our* side, is the U.S. political establishment,

some members of which seem always to have their "intelligence failure" rubber stamp at the ready.

Perhaps most worrisome of all is the sheer volume of the work to be done. The number of potential adversaries has proliferated (one analyst told me how much he missed the "good old days" when one could focus mainly on the Soviet Union). Simultaneously, new collection technologies and methods, along with the flood of open source information now available, have increased by orders of magnitude the amount of data flowing into community organizations. Trying to keep track of it all can be overwhelming.

Searching for Solutions

There is no obviously best way to structure and manage intelligence work. The people are great and the work is important, to be sure, but the frustrations in getting the work done correctly and on time are escalating. In the years since 9/11, many commentators have had their say about how to "fix" intelligence, and every new revelation of some slip-up or oversight generates more diagnoses of what went wrong and what it would take to keep it from happening again. The prescriptions are a varied lot: Change the culture of the intelligence community. Simplify the organizational structure. Give intelligence professionals access to better information technologies. Require more sharing of information across agencies. Make social networking more accessible. Improve the recruitment and training of intelligence professionals. Institute a community-wide leadership development program. And more.

This book offers an alternative approach. Its premise is that the frontline work performed by intelligence professionals—how that work is designed, how it is staffed, and how it is led—may be a good point of departure for improvement efforts. A report on analytic pathologies from the CIA's Center for the Study of Intelligence reaches a similar conclusion: "Analytic failures stem from dysfunctional behaviors and practices *within* the individual agencies and are not likely to be remedied either by structural changes in the organization of the community as a whole or by increased authorities for centralized community managers."[6]

Moreover, since intelligence work increasingly requires coordination and collaboration among people who have a diversity of knowledge, skill, and experience, it often is necessary to create teams whose members come from a variety of intelligence disciplines and, in many cases, from different intelligence organizations. Carmen Medina, a veteran intelligence analyst and former director of the CIA's Center for the Study of Intelligence, has written that what is most needed these days to generate the insights that policymakers demand are interdisciplinary teams that cross traditional institutional boundaries.[7] Consistent with Medina's view, the response of the National Counterterrorism Center to the failed attempt to bring down an airliner on Christmas Day in 2009 was to form "pursuit teams" composed of professionals from across the intelligence and law enforcement communities to prioritize and pursue terrorism threats.

Perhaps the most compelling reason for giving close attention to intelligence teams is that it is *feasible* to improve how they operate and how well they perform. It can be extraordinarily daunting to fundamentally change either whole institutions (cultural inertia is awe inspiring) or individual persons (trying to alter how a person thinks, feels, or acts without taking account of his or her group memberships is an exercise in futility). Because teams are located right at the nexus of the individual and the organization, they are accessible to those who seek to improve how intelligence work is performed. For all these reasons, teams appear to be a good place to start to make things better.

The Challenge

The challenge is to identify what it takes for teams to exploit their considerable potential while avoiding the dysfunctions that await the unwary. Although it assuredly is true that leaders cannot *make* a team be great, we do now know what conditions they can put in place to increase the likelihood (although not to guarantee) that a team will be effective—that it will generate a first-rate product while simultaneously becoming stronger as a performing unit and fostering the learning and professional development of its individual members.

To do that, however, we must get beyond conventional thinking about how teams work. Our natural impulse is to search for the spe-

cific causes of the effects in which we are interested—to search for the "active ingredient" that makes a team effective. But there is no single cause of team performance. Instead, as this book will show, it takes a *set* of conditions, operating together, to help a team move onto a track of ever-increasing competence as a performing unit.

There are six enabling conditions, each of which has its own chapter in Part II of this book. Although these conditions are explicitly based on social science research and theory, they are presented here as imperatives for action, as concrete things that those who create, lead, or serve on teams can do to help their teams succeed.[8] The job of those who create or lead teams, then, is not to exhort members to work together well, not to personally manage members' collaborative work in real time, and certainly not to run their teams through a series of "team building" exercises intended to foster trust and harmony. The leader's job, instead, is to get the enabling conditions in place, to launch the team well, and only then to help members take the greatest possible advantage of their favorable performance circumstances. Indeed, my best estimate is that 60 percent of the variation in team effectiveness depends on the degree to which the six enabling conditions are in place, 30 percent on the quality of a team's launch, and just 10 percent on the leader's hands-on, real-time coaching (see the "60-30-10 rule" in Chapter 10).

The optimistic message of the book is that intelligence teams, for all the challenges and uncertainties they face, can perform much better than they usually do. Moreover, if community leaders find ways to improve collaboration and teamwork where the actual work is being done in their own units, there is at least the possibility that what is learned will diffuse, laterally but perhaps also upward, to improve the quality, speed, and agility of intelligence work throughout the community.