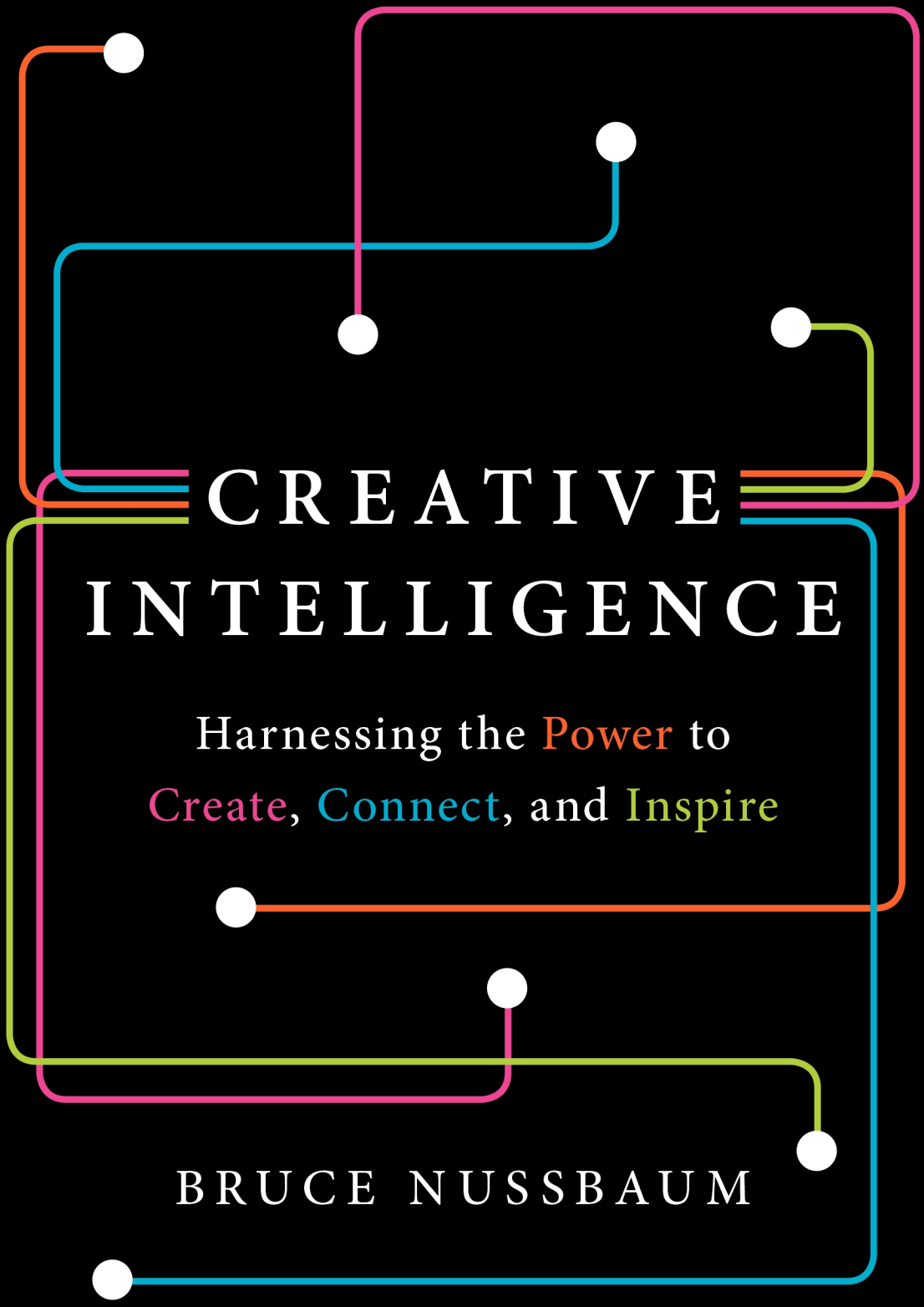

CREATIVE INTELLIGENCE

Harnessing the Power to Create, Connect, and Inspire

BRUCE NUSSBAUM

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On a cold winter night at a safe house in Manhattan somewhere near Bloomingdale's, CIA Director William Casey told me about the CIA's methods for recruiting spies in World War II. It was 1983, and I had received a call the week before from a woman claiming to be the assistant to William Casey, the chief of the CIA. Thinking it was a joke by a friend, I laughed and laughed, until Casey cut in with "Hiya, Bruce, I just finished your book. Can we talk?" That book, *The World After Oil: The Shifting Axis of Power and Wealth*, analyzed how nations would respond to the rise of computer technology. I predicted the Soviet Union would have serious difficulty and the Soviet empire could fall apart. This was the height of the Cold War, and it piqued Casey's interest. He got on the phone and I hurriedly arranged to meet him.

Casey had been head of the CIA for two years; prior to that, he'd successfully managed Ronald Reagan's presidential campaign. But Casey's career in espionage had begun forty years earlier when he, then a Navy lieutenant junior grade, was sum-

moned by William "Wild Bill" Donovan, the legendary "Father of American Intelligence," to join him at the Office of Strategic Services (OSS).

Donovan immediately liked Casey. He could recognize aspects of himself in the young man; both were descendants of poor Irish immigrants, successful lawyers, devout Catholics, and fervid Republicans, and Donovan recognized the same kind of "restless, devouring mind that leaped from enthusiasm to enthusiasm. . . . He was immune to conventional patterns of thinking, preferring to rely on his intuition."

Despite his talents, Casey still felt like an outsider in his first days at the OSS, an institution dominated by what he called the "white-shoe boys," upper-class Wall Street types, rich scions of famous industrialists like Alfred duPont and socialites like Junius and Henry Morgan. Determined to prove himself, Casey left for London in November of 1943, leaving behind his wife and daughter.

In December of 1944, the thirty-one-year-old Casey, now the chief of SI (Secret Intelligence) for Europe, was charged with recruiting spies to gather information inside Nazi Germany. Strangely, this had not been done before. While agents had been sent into occupied Europe—France, Italy, Belgium—where local partisans on the ground could help them, there was no network of partisans inside Germany itself. It was considered too dangerous.

After Germany's surprise offensive at the Battle of the Bulge, however, the Allies changed tactics. With the end no longer in sight, they needed information inside Germany to help them, finally, stop Hitler. Casey's SI agents were given several tasks: They were expected to gather information on potential targets for the Eighth Air Force to bomb, especially German troops massing at rail centers; compile statistics on German industrial production, analyzing whether heavy bombing was slowing it down; monitor

progress on the development of "wonder weapons," including rockets and the atom bomb; and finally, confirm the existence of an "Alpine Redoubt," the Nazi's much-whispered-about bunker complex rumored to be located somewhere in the mountains of Bavaria.

Casey picked his agents from a pool of German communists and labor organizers who'd escaped to London as well as Poles and other Eastern Europeans who could pass as foreign workers, according to Joseph Persico in his book *Casey.* Four decades later, Casey told me, in his thick Long Island Irish accent, exactly what they were seeking in their prospective agents. They wanted people who were smart, not afraid of risk, and independent, and they hired many psychologists and psychiatrists to test for those traits.

What the OSS was looking for was, in essence, creativity. According to one report from the Joint Special Operations University and the OSS Society Symposium, "what made an effective OSS direct action operator was a secure, capable, intelligent, and creative person who could deal effectively with uncertainty and considerable stress." OSS trainees were encouraged to "use their own ingenuity and creativity in overcoming problems."

The night we spoke, Casey was sitting back, reclining deep into a sofa. It was late in the evening, he'd taken off the jacket of his three-piece suit, and his vest was covered in peanut shells. He held the peanuts in one hand and a Scotch in the other. He'd had several. I asked him what happened to the people who were parachuted into Europe.

They just kept disappearing, he said. Staring ahead, perhaps thinking about specific people and events that had occurred some forty years earlier, Casey didn't elaborate further. We now know that many spies did succeed. Moe Berg, a Columbia Law School graduate who also played major league baseball, reported that Nazi Germany was not close to building an atom bomb. The ac-

tor Sterling Hayden made key connections for the OSS running supplies and information through Yugoslavia and Fascist Italy. But my talk with Casey did make me wonder why the psychological testing for ingenuity and creativity didn't stop some good people from disappearing behind enemy lines.

It would be thirty years before research would prove that scores on personality tests didn't correlate with real-world creativity in the field.

That night, Casey wasn't simply telling me about OSS recruitment methods in World War II; he was also telling me the story of the origins of America's search for the secrets of creativity—a search that continues today.

In his book *Explaining Creativity: The Science of Human Innovation*, R. Keith Sawyer, a professor of psychology and education at Washington University in St. Louis, traces the history of modern creativity research back to World War II, describing how former OSS and military psychologists went on to launch research institutes that studied creativity at UC Berkeley, the University of Southern California, and the University of Chicago. One of these men was J. P. Guilford, who would later develop one of the most popular and extensive creativity tests, which initially measured 120 personality traits, including originality and flexibility.

During the Cold War, federal funding for creativity poured forth. When Harry Truman set up the National Science Foundation in 1950, according to Sawyer, one of the first projects was to identify the most promising future scientists. The NSF funded a series of key conferences at the University of Utah on the identification of creative scientific talent.

By the sixties, the search for creativity had spread beyond the university to the nation's public school system. Testing children to identify those with the potential for creativity in order to steer

them toward careers in science and technology became a key goal of creativity research. In 1960, Ellis Paul Torrance developed an exam that essentially tested for "divergent thinking"—the ability to come up with many potential answers to questions, not just the right ones (which traditional IQ testing did). Torrance's exam is still the most widely used to test for giftedness and creativity in both children and adults. It has been translated into thirty-two languages and is the basis for more than two thousand studies.

But despite the widespread use of these creativity tests, researchers in the 1970s and 80s began to challenge the assumption that testing for mental abilities and personality traits could really predict future real-life creative behavior. Some raised questions about sampling. Others expressed doubt as to whether high scores on these tests translated into real-world creative output.

In the eighties, Teresa M. Amabile, a Stanford PhD in psychology with a focus on creativity, went back and looked at nearly all of the personality tests that measured an individual's "originality" and observed that there was an implicit subjective bias built into the tests. As Sawyer points out, Amabile concluded that people from different fields and careers have their own measures of creativity and novelty and were therefore scoring tests differently according to their own areas of expertise.

Amabile's work is significant for two reasons. She argued that creativity has a social context; each field—whether music, business, science, sports, art, or warfare—has a different set of experts who have specific notions of what is traditional, conventional, and creative. So while there may be general patterns of creative behavior that everyone shares, creativity in the field requires a certain level of domain knowledge.

Amabile's research also marked the beginnings of business's love affair with creativity. After her breakthrough research, Amabile shifted her focus away from individual creativity to organi-

zational motivation and team creativity. She is now a director of research for Harvard Business School, ensuring that the business school supports creativity research as it emerges from within a social and cultural context, such as a new start-up, a project team, or even an established global corporation. This particular thread of creativity research—that moves away from the individual to the group, from personality and thinking patterns to social organization and behavior—has only gotten stronger as business leaders express intense interest in how to make their organizations more innovative.

By the time Amabile and others began to critique the first wave of creativity research, Sawyer notes, a second stage—one that has its origins in the personal growth movement of the 1960s and 70s—was growing in popularity. As cognitive psychology was gaining traction, psychologists sought to explain creativity by showing how it emerges from mental processes and abilities. Where before psychologists tried to find out how personalities and individual thinking differed, now they looked at what mental processes people shared and how they correlated to—if not caused—specific behaviors.

It was in the labs of Lake Forest College and later, in the seventies, at the University of Chicago that one of the most important contributions to modern creativity research was developed: "flow." The experiments of psychologist Mihaly Csikszentmihalyi determined that there is a distinct cognitive state of mind that individuals enter when they are performing creatively. We talk about being *in the zone*, *on a roll*, *centered*, or *in the groove*, but my favorite description of this state of mind just might be Keith Richards's description of playing with the Stones: "There's a certain moment when you realize that you've actually just left the planet for a bit and that nobody can touch you. . . . When it works, baby, you've got wings."

At Chicago and in a series of books including *Creativity: Flow and the Psychology of Discovery and Invention*, Csikszentmihalyi laid out the elements that went into the flow state that Richards describes. The absence of a sense of time, extraordinary focus, a feeling of unlimited potential, great confidence, intrinsic motivation, absence of hunger and fatigue, and joy, even rapture, in the process of creating are all elements of flow. Back in 1959, Rollo May, an existential psychologist, used the term "peak experience" to describe moments of intense awareness, heightened consciousness, and an obliviousness to time and surroundings. Csikszentmihalyi built on these ideas and called it the "flow state."

Csikszentmihalyi gave a secular, psychological interpretation to what artists for centuries have described in religious terms such as "God's gift." Even today, many traditional potters, weavers, and jewelers on the Hopi, Navajo, and Pueblo reservations talk about the moment when, after days or weeks of feeling blocked in their work, a "spirit" from the Creator moves through them, providing insight and the path to new creativity. They often describe this moment with arms raised toward the heavens but use precisely the same terminology of timelessness, insight, potential, and joy.

By the 1990s, advances in brain imaging technology were allowing psychologists to directly see what was happening in the mind when people were performing various "creative" tasks. As powerful scanning machines that generate three-dimensional images of the brain at work were developed, the new field of cognitive neuroscience was born. It continues to be a well-funded and popular research methodology for analyzing creativity today.

Cognitive neuroscience research has helped demolish a number of major myths about creativity. Brain scans have shown that creativity is not localized to the right side of the brain, despite the popular perception about the creativity of "right-brain" types. Because creative behaviors activate the entire brain over a period

of time, creativity can't be reduced to a single flash of insight in a single moment. And when scanners get smaller and more complex, we may discover more insights into what happens to the brain when we act and feel.

But even then, neuroscience runs the risk of being just like the shadow on the screen in a Javanese puppet play, revealing the reflection of reality, rather than the reality itself.

And so, as fascinating as the new research on creativity from neuroscience is, as much as it has helped to debunk the idea of the lone genius, it's time to also toss out the old lightbulb, and turn a more wary eye on the brain wave machines that so beguile us. As cool as "aha moments" are, and as interesting as it is to understand what parts of our brain are working when we're improvising or solving a problem when we're in the shower, creativity is about so much more than that moment . . . and it's about so much more than the individual experiencing that moment.

Until neuroscience can stimulate parts of the brain and cause us to behave creatively—and it's well worth asking ourselves, at what cost?—then I'd argue that the best way to understand Creative Intelligence is to study and learn from the people and organizations who've cultivated it.

Not surprisingly, several of the pioneers of modern creativity research have done just that.

In Renaissance Italy, Florence had a remarkably large number of great painters: Leonardo da Vinci, Raphael, Botticelli, and Donatello among them. How do we explain it? Was it serendipity that there were so many people with peak "flow" states that enabled them to create? Perhaps. But there may be another explanation.

Florence at that time was an immensely rich city-state whose elite marked their status by acquiring art. The presence

of great artists tended to generate more great artists as they frequently collaborated, seeking each other's criticism and advice. In other words, the creativity emerged in large part from the social and cultural context of Florence six hundred year ago. By the measure of the Renaissance, great painting and creativity do not thrive in Florence today and may never again. The right mix of political and economic conditions that made them possible no longer exist.

Interestingly, the man who observed how the culture of Renaissance Italy contributed to the explosion of artistic creativity was the same man who gave us the psychological concept of individual "flow"—Mihaly Csikszentmihalyi. Though Csikszentmihalyi is much better known for his work on flow, in four works of research, he returned again and again to the lives of artists during the Italian Renaissance of the fifteenth century. In his research and his books, Csikszentmihalyi asks: What are the social conditions that lead to creativity? How can we make ourselves part of that social matrix? These are typically questions that anthropologists and sociologists, not cognitive psychologists, ask. They involve the larger concepts of culture, organization, change, and social movement.

It was Csikszentmihalyi's student R. Keith Sawyer who highlighted that these two streams of creativity research—one focused on cognition, the other on culture—were pioneered by one man. Csikszentmihalyi has had many students over the years, but few have had the same impact on creativity as Sawyer.

Sawyer grew up in Newport News, Virginia, and received a computer science degree from MIT in 1982. As a student, he used what was then a new field, AI, artificial intelligence, to simulate in computers what was assumed by his professors to be the creativity of humans. But all the experiments were designed on the assumption that creativity was an individual process. That didn't fit what Sawyer already knew from his days playing in a jazz

band. "I saw creativity as it emerged within an ensemble between people, not just what was inside someone's head," he says. "AI missed the interactional dimension where creativity takes place." This "interactional dimension" is something many artists have experienced firsthand. In *Life*, Keith Richards writes, "It was the bands behind them that impressed me just as much as the front men. . . . It was how guys interacted with one another, natural exuberance and seemingly effortless delivery."

With his degree, Sawyer became a consultant, designing video games for Atari and, during most of the nineties, working as a management consultant on innovative technologies for Citicorp, AT&T, US West, and other global corporations. While pursuing a degree in psychology and education at the University of Chicago, he took a course called the Psychology of Creativity with Csikszentmihalyi in which he observed the conversational dynamics of young children doing what he called "sociodramatic pretend play." This interaction reminded him of his own music. "It was just like what jazz players do," he says. "I played jazz piano since being a teenager and continued to play in college and after college. The thing about jazz is that it is an ensemble art form. So much of what happens is between the musicians, not inside any one musician's head."

Sawyer is now a professor of psychology, education, and business at Washington University in St. Louis, and may soon become dean of the business school's executive MBA program in Shanghai. He advises companies on how to boost their creative output, and his advice comes directly from his experience with children pretend-playing. "What makes for a great creative team? Whether it's musicians, improv acts, or business teams, there are three elements to creative teams: trust, familiarity of members with each other, and a shared commitment to the same goals," he says. "These can enhance the performance of any group."

If cognitive psychology and neuroscience have taught us that

we all possess the ability to be creative, then a more sociocultural approach offers insights as to how we must *act* in a social context to *be* creative. How does creativity emerge from collaboration, how does it thrive within a social context? In an era of huge social change and the explosion of social media, it's *the* question to ask.

It is not known how many of the nearly 24,000 OSS agents who worked for the OSS during World War II succeeded—or even survived. Many did exceptional work. But as I talked with Bill Casey in those hours on that night, it was clear that many did not. What I believe Casey was telling me was that he had learned that success as a spy had little to do with a trait or personality type but rather a particular kind of training: The spies who lived to tell the tale of their service in Europe were people who'd been trained to be creative on their feet.

A number of them—not surprisingly, perhaps, with what we now know about creativity—were trained for the stage, trained to play. In the end, he told me, the people who did best, who tended to disappear less, were often actors and sometimes clowns. The OSS sent the players in, and they tended to disappear less, he told me. And then he laughed.

Working in an environment of extreme uncertainty, improvising solutions to unexpected and often unknown problems, seeing connections between seemingly disparate data and events—these are just a few of the challenges that unite the OSS spy experience with what many of us face today. When society is safe and stable, what we need most are the tools to make things a bit better, more efficient. When technological, political, and environmental shifts threaten the status quo, what we need most are the tools to make things sharply different, radically new. We need to be less incremental and much more creative.

And yet, the prevailing view on creativity is psychological,

mental, brain-centered, individualistic. We tend to believe that creativity comes through the individual and is expressed solely by the individual. These perspectives on creativity don't explain how to act creatively, how to learn to be creative, or how to assess the performance of creativity; they explain the mental processes associated with creativity.

We need to go further. We need to stop searching for some magical place in the brain where creativity resides. We need to believe in our own abilities to create and to improve upon our creative skills by teaming up with the right people. We need to stop studying creativity just in labs—and recognize that it's all around us: in the stories of great painters and their rivals, in the meals we cook using a bit of one recipe and a bit of another, in the games we play with our kids.

As for those of us studying innovation and working in organizations who are seeking to find "the next big thing," we need to explore creativity not at the individual level but as it plays out in groups and cultures. We must be willing to have deeper conversations that go beyond the standard metrics.

For some time, those of us in design thinking circles have attempted to "talk the language of business." And as we do so, the process of creation has often been reduced to a linear, mechanical process of funnels and inventories and inputs and outputs, all measured meticulously and continuously. The result, often, was incremental change—certainly good, but definitely not disruptive.

Disruption comes most often from entrepreneurs and start-ups whose founders were themselves swept up in cultural change and social movement. What we're witnessing in tech hubs like Silicon Valley or amid the growing start-up scene in New York isn't all that different from what Csikszentmihalyi described in his writings about Renaissance Florence. Although many of to-

day's innovators are working on different canvases, the factors contributing to the explosion of creative output—a spirit of collaboration and competition, wealthy investors keen to be part of the next big thing—are similar. And like the artists who came before, today's innovators take what money can't buy—the desire to share among those who are lonely, the drive to participate among those who refuse to be passive, the need to build from those who don't simply want to consume—and transform it into products and experiences that people *can* buy.

And so those of us in the design and innovation world need a new vocabulary and a new repertoire of methodologies. Ideas like "user focus," "visualizing," and "failing fast" were all healthy attempts to understand and implement innovation, but we now know their limitations. "User experience," for example, was a brilliant turn away from the prevailing technology-centric, engineer-driven approach to designing products that drove so many of us crazy—and a turn toward a focus on what users needed. But why the focus on just *needs*? Why not, as Indian design firm IDIOM's cofounder Sonia Manchanda has proposed, aim for something bigger, richer? Why not focus on aspirations—dreams that we may believe are not even possible?

For decades, brainstorming, a technique developed by the advertising agency BBDO that took off in the fifties, has been perhaps the single most popular technique for generating creativity. People gather in a room and offer up dozens, if not hundreds, of original ideas. Brainstormers are encouraged to "go wild" and "think outside the box." But as Sawyer points out in his book *Group Genius*, there is a large amount of research that shows the technique doesn't work. Throwing out hundreds of ideas doesn't necessarily lead to the right one. People often hold back their best ideas in groups; many generate more ideas when they're alone. And perhaps most important, the most meaningful ideas typi-

cally result from deep domain knowledge and expertise, not from the shallow, breathless explosion of scattered thoughts.

It's clear we've reached a point where the older categories are coming under attack for not delivering all of what they have promised. And so it's time for new categories and a new framework for understanding and implementing creative innovation.

Where the old model focused on managing innovation as a process, the new model concentrates on how entrepreneurs, artists, scientists, designers, engineers, and the rest of us can transform our creative ideas into creations that have value. Where the old model focused on meeting needs, the new model gets at the heart of what is truly meaningful to people. Where the older model sought to make innovation predictable and risk free (the *Harvard Business Review* ran a cover story in May 2012 entitled "Innovation for the Risk-Averse"), the new model sees creativity as a practice that actually harnesses uncertainty. Uncertainty, after all, is where you find opportunity.

What I have discovered from twenty-five years of writing about innovation and creativity, from the hundreds of interviews I've conducted with leaders in the fields of business, design, and technology, is that there is nothing "rare" about creativity; it is something we can all cultivate. Creative Intelligence can be found across many fields and disciplines, in all spheres of life—people who might never consider themselves "creative" are drawing on many of the same skills as those a musician or writer would use. Most important, Creative Intelligence is social: We increase our creative ability by learning from others, collaborating, sharing.

You can't "do creativity" in a vacuum—and even if you could, these days, you simply can't afford to. We're living in a time of instability and immense change, and creative collaboration is key. There are many forces of change washing over our lives today, all of which require the opening up of silos, the mixing together of

the incredibly specialized knowledge many of us have come to possess, the sharing of ideas across cultures and generations.

Those of us who grew up during an era of American ascendancy can recall when the culture of the United States in all its forms—music, business, style, money, language—dominated the world. But today, by most economic measures, the United States is falling relative to Asia and much of the rest of the world: China's influence continues to grow, Indian consumers demand their own style of consumer products, and Washington has to curry favor with foreign governments to buy soaring US national debt. The United States must accommodate its products and its policies to this increasingly complex world.

At the same time power is shifting throughout the world, the United States is experiencing a significant shift within its own borders. The aging of the huge boomer generation, the largest of its kind in US history, and the rise of an even larger demographic, Gen Y, marks a dramatic split. Gen Y's stronger embrace of sustainability, same-sex marriages, and racial and ethnic integration as a result of having been born into a world where such cultural values are more widely accepted is affecting not only those born after 1980 but the nation as a whole. But it's Gen Y's desire to participate in and create their own media that's having the most profound effect on the American economy.

Social media's rise has drastically altered industries from journalism to health care, altering virtually everything we do and how we do it. Facebook, Tumblr, Groupon, and Spotify all use technology that allows people to directly build their own communities and organize in flat, horizontal, and more democratic ways. This is an extreme departure from the traditional hierarchical, centralized, authoritarian modes of organization of decades past. Corporations, schools, hospitals, and virtually all large organizations need to adapt to social technology—or be replaced.

In 2010, for the first time in human history, more than half the people living on earth lived in cities. In forty more years, it's projected there will be around 9 billion people on earth, the majority of whom will live in cities, striving for a 1990s US lifestyle, eating lots of meat, living in big houses or apartments, and riding around in cars. It is a wonderful picture of upward mobility for hundreds of millions of people and a valid goal for policy makers, but it will weigh heavily on the earth's resources.

The US military's term for the kind of environment is VUCA—"Volatile, Uncertain, Complex, Ambiguous." The acronym came out of the US Army War College in the late nineties to describe the new operating conditions that world military leaders had to face—the rise of terrorism, global political instability, and asymmetrical warfare. It's a term that also perfectly captures the prevailing instability of society in general.

While the risks the average American faces certainly are less deadly, I've found no better way of describing the current economic landscape than VUCA. Change in life is a constant, but shifts in our industries or career paths usually come episodically, giving us time to adapt to them. Sometimes, however, the frequency and volatility of change happen at an unusual rate—that's where we find ourselves today. While it can be scary, we should take note from the military that VUCA landscapes also present unusual opportunities to do things differently. It will take not only new strategies, but a new way of thinking, communicating, and creating.

We were trained to deal with a world of predictable futures, but the future—both the good and the bad—is anything but predictable. We're living in an "I don't know" world where we can't fathom the problems to come, much less the answers. Skills once perceived as valuable, degrees considered prestigious no longer guarantee job security or even a middle-class income. Many of

today's most in-demand jobs didn't even exist a decade ago. We need to prepare ourselves for jobs that don't yet exist, using technologies that haven't been invented, to solve problems that we haven't recognized.

And so this is a book for people who aren't just interested in becoming more creative, but who want to create things that change our lives. The five competencies of Creative Intelligence aren't simply best practices for organizations to transform themselves; they are tools that can help you plot a career path if you're young and transform your career if you're not. Understanding them will help you better navigate a rapidly changing world and construct a place for yourself in it. The competencies can also help us generate the kind of jobs, businesses, and revenues that the nation so desperately needs today.

THE FIVE COMPETENCIES OF CREATIVE INTELLIGENCE

KNOWLEDGE MINING. The knowledge at the foundation of Creative Intelligence is not the kind that can be found on standardized tests. Today's most creative entrepreneurs, thinkers, and artists are in touch with what's truly meaningful to people—starting with themselves. They understand that what matters to one generation or demographic may mean little to another. They don't focus on "unmet needs" when it comes to developing new ideas; they use their own experiences and aspirations as a starting point for dreaming up new companies and technologies. When their own experience is insufficient, these individuals don't turn to traditional market research; they go straight to the source and partner with people who are more embedded in a culture than they are.

The people who are routinely creative are skilled at connecting information from various sources in new and surprising ways. They know how to cast for new ideas—bringing together information from different fields or going back in time to discover forgotten ideas and practices they can use to meet new challenges. And there are those of us who have such deep domains of knowledge that we can intuitively understand what's not there.

In this chapter I'll introduce strategies that some of the world's most creative people use to draw inspiration from their own experiences as well as from the unlikeliest of places.

FRAMING is a focal lens that can guide us through the vagaries of a volatile world. Understanding your frame of reference—your way of seeing the world as it compares with other people's—is a key strategy no matter your aspirations or industry. People who understand framing techniques are better able to shift their perspectives depending on the situation, environment, and community they're interacting with. This is not to say that they lose sight of their aspirations or what's meaningful to them—quite the contrary. They are able to continually "check in" to see how their biases might be affecting the conversation or how their worldview might be limiting their ability to come up with more creative strategies. The concept of framing has its origins in sociology and anthropology, but I have come to see how creative individuals excel when it comes to framing their world and interactions.

As we witness the crumbling of even the most established financial and corporate institutions, framing has become an essential tool for adapting quickly to unexpected shifts. For example, in the past, when people thought about health care, they focused on treating diseases. Today the Mayo Clinic and other leading health-care facilities are focusing on well-being. In the field of education, Stanford and other top universities are beginning to

utilize techniques such as search and networked delivery of information so that people can learn anywhere, anytime.

I will introduce three kinds of framing: Narrative Framing, which is how we interpret the world; Engagement Framing, how we interact with each other; and What-If Framing, how we imagine the unthinkable to innovate beyond our wildest dreams. Understanding how to frame (and reframe) our beliefs about our organizations and entire industries is a powerful way to drive disruptive creativity. At every step of the creative process, people who understand the power of framing are able to recognize where they stand, when they need to refocus their lens, and who else needs to be in the picture.

PLAYING is not just kid stuff; it's a complex behavior that is driving the creation of life-altering technologies and companies. Creativity can be found in many kinds of "playgrounds"—spaces (not necessarily physical) where people are given permission to play games, make up new rules, discover different ways of winning. We associate playgrounds with children, but Navy Seals, scientists, and engineers all "play" at discovering solutions to challenges, some of them deadly.

It has become fashionable in innovation circles to talk about the "need for failure" to achieve something great. But why label such an essential step in the creative process "failure" at all? By adopting a more playful mind-set we're more willing to take risks, explore possibilities, and learn to navigate uncertainty, without the paralyzing stigma of failure. Moreover, new research is showing that playing can be a superior alternative to a problem-solving approach to innovation.

Games are the fastest-growing social structure in society today. A generation raised on multiplayer video games is using their experience to create new business models in the fields of finance, education, sports, manufacturing, medicine, music, and

art. Many companies, upon discovering that fun and competition are excellent motivators, are using games in their hiring process. And perhaps the most exciting development is the number of organizations experimenting with games for the social good.

Playing games and learning how to design games effectively teaches people not only how to create new products and services, but also how to build their own complex social systems. Gamers build communities rather than simply rack up customers. Games are dynamic, interactive, and immersive and can have any number of solutions or conclusions. For generations brought up in "Search" mode, games are the perfect organizational structure for learning.

MAKING is the fourth Creative Intelligence competency, and it's perhaps the most surprising and exciting shift to arise in our global economy. After decades of rewarding mental agility—trading on Wall Street, consulting, strategy, and branding in Corporate America—we are experiencing a maker's renaissance. Americans want to make things again. And thanks to a whole host of new technologies and the democratization of the tools of creativity—from Photoshop to 3-D printers to Behance—we're doing it.

The revival of a "maker culture," combining open-source philosophy, new channels for distribution made possible by social media, and a shift to DIY, Made-in-the-Hood consumerism, has helped Making become a critical component of innovation once again. New forms of community-curated venture capital, such as Kickstarter and Grind, are making it easier than ever to get financing for a new endeavor. This chapter reveals how we can all learn some crucial twenty-first-century maker skills, and, in so doing, re-create our jobs, careers, and identities.

PIVOTING from the inception to the production side of creation is the final of the five competencies. Traditional notions of creativity separate the process of coming up with new ideas from the actual making of new things. But truly creative people

don't stop at the idea; they make the pivot into creation. By moving beyond the creative idea in order to create new products and businesses, Pivoting is a way of reprising creativity's crucial role in capitalism as a driver of innovation and growth. But how?

Most disruptive innovations come from individuals who are leading a cause and who've inspired a loyal following to get involved in that community. And yet our investments into innovation don't always reflect that. Most of our efforts to promote creativity go to older, established corporations, where incremental innovation is, at best, the result. Yet where have the most important innovations that have changed our lives in recent years come from? Google, Facebook, Zipcar, Wikipedia, and Kickstarter were all founded by individuals, not big corporations. Which is not to say that big companies can't do innovation right—but they'd do well to look to start-ups for guidance.

Pivoting often requires charisma, a relationship with the community of people invested in your project: team members, partners, and a devoted audience. Today's most creative individuals see their work as a calling; that belief in their work gives them the energy to move forward and inspire others to join them in what becomes not just a business but a social movement. They cultivate their charisma in order to serve their calling, and so can you.

Together these competencies give us a new foundation to build a more vibrant kind of economic system. People with Creative Intelligence are ushering in a new way of doing business, one that's more in keeping with the origins of capitalism than the finance-based model of the last couple of decades. I call it Indie Capitalism because it is free of many of the constraints and notions that we commonly associate with the economy. We can already see the broad outlines of this system as it evolves.

Indie Capitalism tends to be socially, not transactionally, based. Networks, not markets, are the core component. Value is created by making the new, not trading the old. Indie capitalists care about what's meaningful to people, not what their "unmet needs" are. The locus of value in Indie Capitalism shifts toward the local economy and away from the global economy. Globalization remains important, but even the largest multinationals understand the importance of adopting "local" values like generating jobs in the neighborhood, sourcing from nearby farms and factories, and crafting sustainable products and services.

My goal in developing the concept of Creative Intelligence is to make the practice of creativity routine. I believe it can be an organic, everyday occurrence, not an artificial experience orchestrated by consultants who encourage participants to wear funny hats and write wild ideas on a whiteboard. I'd like to enable you to create easily and often. I'd like to encourage you to become comfortable with your own creative habits and to rediscover how much fun they can be. I want to reintegrate the concept of play with the concept of work and show how the rituals of creativity cross from one dimension to the other.

For some people, building upon their Creative Intelligence might mean taking an edgy photo and sharing it with Instagram. For others, it might mean launching a storefront on Etsy or Amazon. We all have the ability to make things, and while we might not know how to do so just yet, the tools that make creation possible exist and they have never been as inexpensive to access or as easy to master.

Creative Intelligence is about tools, not lightbulbs. It's something we do, not something that happens to us. It's about what happens during those moments of insight, but also *after*; it's the

hard work and the collaborations that can help bring your idea out of your mind and into the world.

Creativity can be common and routine, not rare and occasional. It is something that can be evaluated by assessing performance at specific tasks or reviewing a body of work, not measured by standardized tests. Above all, Creative Intelligence is a way of expressing our humanity, our unique power to create, connect, and inspire.