Empowering Canadian Entrepreneurship and Innovation

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Celebrating 75 years of the National Research Council of Canada Industrial Research Assistance Program

National Research Council Canada
Conseil national de recherches Canada

Canada

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ECW

Published by ECW Press
665 Gerrard Street East
Toronto, Ontario, Canada M4M 1Y2
416-694-3348 / info@ecwpress.com

Editor for the Press: Jennifer Smith
Cover design: Tania Craan

LIBRARY AND ARCHIVES CANADA CATALOGUING IN PUBLICATION

Title: Empowering Canadian entrepreneurship and innovation / National Research Council of Canada.

Names: National Research Council of Canada, author.

Description: Issued also in French under title: Renforcer l'entrepreneuriat et l'innovation au Canada. | Includes bibliographical references and index.

Identifiers: Canadiana (print) 20230171222 | Canadiana (ebook) 20230171303

ISBN 978-0-660-47375-8 (hardcover) NR16-416/2023E
ISBN 978-0-660-47374-1 (ePub) NR16-416/2023E-PDF

Subjects: LCSH: National Research Council of Canada Industrial Research Assistance Program (Canada) | LCSH: Entrepreneurship—Canada. | LCSH: New business enterprises—Canada. | LCSH: Entrepreneurship—Government policy—Canada. | LCSH: Technological innovations—Government policy—Canada. | LCSH: Federal aid to research—Canada.

Classification: LCC HB615 .E47 2023 | DDC 338/.040971—dc23

PRINTED AND BOUND IN CANADA

PRINTING: FRIESENS 5 4 3 2 1

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ACKNOWLEDGEMENTS

A book of this scope requires the contributions of many people. First, we are indebted to all the entrepreneurs who shared their experiences, stories and sage advice in this book. To all who participated, thank you for sharing your time, your stories and your valuable counsel.

Our inspiration for writing and publishing this book was born from our experiences in supporting entrepreneurs over our 75-year history. It is their challenges and demonstrated drive to succeed that inspire entrepreneurs and innovators yet to come.

Bringing this book to life also involved a lot of hard work and collaboration within NRC and specifically IRAP. It would be impossible to list all staff who contributed to the planning, editing, reviewing, coordinating and publishing of this book. Like every NRC IRAP endeavour, there are many people behind the scenes doing what they do best — lending their expertise to deliver the excellence for which NRC IRAP is known. We are thankful to all of you and to our colleagues across the NRC who also gave their time and energy to help create this book.

FOREWORD

I think that as Canadians, we tend to not "rock the boat," believing that calm waters are best. If there's one thing I've learned over my career, it's that the entrepreneurial journey is rarely calm and never boring.

Those who go into business for themselves can expect amazing highs and incredibly gratifying and positive experiences, alongside a hearty dose of adversity, risk and hard work. I know firsthand — calm waters are overrated. At a time when I felt like I was at the top of my game, I faced one of the most challenging times of my career.

In 2012, my company, Venture Communications, was one of the most successful marketing agencies in Canada. And then, a once-in-a-century flood hit Calgary and our Venture offices, which were in a renovated schoolhouse, were hit hard. Floodwaters damaged essential equipment, and irreplaceable pieces of our earliest work were lost forever. My staff was scattered across the city, trying to keep projects on track. That was far more challenging back then than it would be today, now that video meetings and cloud collaboration are common practice.

In the flood's aftermath, our firm was up for a number of client reviews. Chaos after the flood contributed to my company losing four major clients in quick succession. Some staff quit to secure more stable positions and I had to lay off others. The flagship business I had built into an international marketing powerhouse was now in danger of collapse.

It was far from calm waters. I was worried not only about losing my business and the legacy I had built, but also about the consequences for people who depended on me. Venture had persisted for decades, so I embraced my fear and used it to focus on rebuilding and reinventing my business. I had felt for a long time that I wanted to shift to the health and wellness space, and that I wanted to put a stronger focus on helping new entrepreneurs. This gave me the opportunity to do so. These were essential choices, if not exactly safe ones.

Over my career, I've witnessed people make safe, often easier choices. They do what they think they "should" do to protect their business. In the end, a safe choice may do more harm than good, because sometimes not taking a risk means missing a chance to evolve.

For me, seizing risk was the antidote to complacency. It was the prompt I needed to make bold changes to help Venture survive, even thrive. I was more terrified of doing nothing and seeing everything crumble away than I was of making the wrong move. So, I took the opportunity created by this crisis to alter the trajectory of my business into one better aligned with my long-term vision and my personal priorities. In this book, I share how and note the ways I found support from Canada's innovation network.

This book includes the stories of numerous other business founders and innovators. They dole out advice based on their entrepreneurial, grassroots experience. They touch on topics people face when starting a business and growing a startup.

This book also speaks to the remarkable value of the National Research Council of Canada Industrial Research Assistance Program (NRC IRAP), an initiative with 75 years of experience in empowering Canadian innovation and entrepreneurism. While most organizations would use their 75th anniversary to only talk about how great they are, NRC IRAP seized the opportunity to spotlight people who have made Canadian innovation and entrepreneurism their life's work.

The varied experiences of the people in this book show the importance of sharing knowledge. By sharing their experiences, they can help new generations of entrepreneurs thrive in Canada. I've seen a new breed of entrepreneur today. These entrepreneurs are socially conscious, focused on building the Canadian economy, creating jobs and driving value for our country while still being nice, good and honest.

No one succeeds without a community of support, whether it's from other founders in the community, startup incubators or organizations like NRC IRAP that spend time in the trenches with founders and innovators.

I would never have been able to do what I've done on my own. I've often relied on others who know how daunting and rewarding the entrepreneurial experience can be.

My career and my time on CBC's *Dragons' Den* have taught me that a great idea, and a great entrepreneur, can come from anywhere. It doesn't matter who or where you are — what matters is what you're made of.

What defines those who succeed is the grit and the tenacity they exhibit. And how open and willing they are to share what they can with those around them who are likewise in need. Success for an entrepreneur is not just the success of one person, it takes everybody working together.

The lessons within this book show that while there are challenges that come with starting a business, there are also many ways to overcome and succeed. Don't be discouraged by what you see as your limitations. Be encouraged by what you believe your dream can be.

Go out there and give it your best for you and for Canada.

— ARLENE DICKINSON

INTRODUCTION

This book commemorates the first 75 years of the National Research Council of Canada Industrial Research Assistance Program (NRC IRAP). This book also shares business insights and stories from Canadian innovators and entrepreneurs. NRC IRAP is a common thread linking many of those people and companies.

Over the years, NRC IRAP has been an essential federal contributor to this country's innovation ecosystem. That ecosystem is the collective environment for nurturing and supporting startups, technologies and ideas. It includes government programs, Indigenous communities and organizations, investors from angel networks and venture capital funds, industry consortia and associations, higher education like universities and colleges, municipal chambers of commerce, not-for-profit organizations, research hospitals, research laboratories and infrastructure, business and technology accelerators and incubators, and industry-specific hubs or clusters.

Statistics Canada reports that nearly 98 percent of businesses that employed Canadians in 2021 were either small or medium-sized enterprises. That makes for an enterprising nation.

Entrepreneurial and innovative people, whether born here or newcomers to Canada, invented medical advances that have been used to make people healthier worldwide. They also created snowmobiles and air ambulances to improve ways of travelling during long winters.

Canada has been a source of new agricultural methods to help feed a growing nation. Its engineering and scientific prowess made daily life easier for people in remote areas and those living with disabilities and diseases. From the 19th to 21st centuries, people within Canada's coasts developed new ways to communicate despite great distances: the telephone, advanced radio technology, two-way messaging and more secure mobile communications.

Many people pursue innovation and yet for every George Klein, Elsie MacGill, Frederick Banting, Alexander Graham Bell or Donna Strickland, there are countless others who are not yet household names, have not won Nobel Prizes or have not made life-altering discoveries.

Sometimes, those who make major discoveries, may not be the ones who rise to fame. In 1874, two men from Toronto named Henry Woodward and Mathew Evans invented and patented an early version of the incandescent light bulb. The inventive duo struggled to find investors to improve upon and mass produce their idea. In 1879, they sold their U.S. patent to Thomas Edison for $5,000. That would be a healthy sum in today's dollars, but it was a deal considering how popular and widespread those light bulbs became.

However, not every new idea can be a veritable light bulb. Recognizing the different forms innovation takes is part of the process. Sometimes, it is about improving an everyday item and making the improved version something people do not want to live without. People fastened clothes with laces and buttons for ages, but in 1913, Swedish-born engineer Gideon Sundback developed the Hookless No. 2, metal teeth attached to fabric. He manufactured what became known as zippers in Ontario and they now zip up everything from clothing and upholstery to tents and screens.

What is important is understanding where a new idea fits into people's lives. Seeing a market for an idea, whatever new or iterative form it takes, is a necessary step to move from the idea's notion to actual production and distribution to new markets.

Innovation can fill a need by designing and manufacturing something useful like a zipper. Or, innovation can culminate over time, from a technology idea to a company with a vision to make a difference on a grand scale. Like Dave Leger, who founded Loop Energy in Vancouver in 2000. Loop is focused on green energy to prevent more pollution from entering the Earth's atmosphere. Now, the company has offices and manufacturing facilities on three continents for creating hydrogen fuel cells for transport trucks, buses and stationary power generation systems.

Innovation can also serve to help people relax after a hard day of work. Not too long ago, whirlpool hot tubs were a luxury item found only in resorts, spas or homes of the rich and famous. At some point, a clever entrepreneur thought of selling the hot tub as an experience, something to be shared, around which to plan social occasions, and to unwind in the privacy of one's own yard. That industry grew and a couple of salespeople in Thorsby, Alberta, noticed that the hot tubs they sold, which were manufactured in the southwestern U.S., failed to stand up to winters in the Canadian Rockies.

Later, those salespeople bought a local manufacturer and applied their own design and engineering expertise to the hot tubs. Their work formed what is still decades later one of the world's top hot tub brands, Arctic Spas. The company's co-founder, Darcy Amendt, knows that they've pushed well beyond "boxes of hot water" as his father jokingly calls hot tubs. Amendt and his co-founder devised stronger equipment, additional features, better insulation, advanced monitoring and service through integrated smart technology. In a growing market, they met and anticipated the needs of customers in colder climates.

When someone with drive and ingenuity notices an obstacle in the way of a product, service or idea and they set out to fix it, innovation and entrepreneurism can happen.

Why read this book

This book introduces dozens of people who chose to overcome obstacles and disrupt the status quo. These people recognized a problem, came up with a way to solve it, and then saw it through to it becoming a product, a service, a business, or all three. Although some of the people in this book are well-known across Canada and internationally, other names may seem new. Not every enterprise comes with a famous origin story, but big or small, the dedication involved and the insights that resulted are worthy of celebration.

Another truth to realize is that virtually every journey involves many twists and turns along the way. The path from an idea to what that idea eventually becomes is rarely straight and clearly defined. And sometimes, the person who starts the journey is not the person who ultimately finishes it. Some serial innovators and entrepreneurs enjoy and excel at earlier phases and prefer to hand off directing and managing later phases. Then, they turn their attention to developing their next innovation. In some cases, collaborating with another innovator, another company, another country or another investor may be necessary.

This book presents stories of the many forms that an innovator or entrepreneur's journey might take. It shares their collected insights under categories like risk, competition, hard work, time well spent, money, adversity and fear. Regardless of Canadian innovators' and entrepreneurs' eventual paths, having a strong innovation ecosystem to support them can make all the difference.

In this book, science or history buffs will find insight into Canada's record of innovation. Others might admire the many accomplished people featured in these pages. Public administration and policy researchers may be interested in the Government of Canada's long-standing commitment to create the right conditions for Canadian innovation and entrepreneurial success.

And aspiring innovators and entrepreneurs may be intrigued because they have felt similar urges to create, innovate, take a leap, build a business and make a difference. This book is a collection of stories and experiences showcasing different ingredients for success for entrepreneurship in Canada, including supportive programs and services.

The origin story

Before exploring this book's chapters, take a look at how a simple conversation in an airport kickstarted what would become NRC IRAP.

Shortly after the end of the Second World War, bad weather left C.D. Howe and C.J. Mackenzie stranded together at an airport. Howe was Canada's newly named Minister of Reconstruction. Mackenzie, a former student of Howe's at Dalhousie University, was President of the NRC. The two men knew that the immediate post-war period would be challenging for smaller manufacturing businesses.

Howe understood innovation and entrepreneurism. He had spearheaded major developments in the construction of grain elevators across Canada, the U.S. and South America. He spun his experience designing elevators for the Canadian Board of Grain Commissioners into his own business, founding C.D. Howe Co. in 1916 and becoming what the *Canadian Encyclopedia* called "the foremost grain-elevator builder of his day."

Howe never sought personal glory and was famously straightforward. During his 22-year political career he gained the nickname "Minister of Everything." In some corners, he is credited for shifting the Canadian economy from agriculture to industry. Howe applied his expertise in business and technology to solve the most critical problems Canada faced at the end of the Great Depression, during the Second World War and through to the next decade.

During the war years, Canada diverted a huge portion of industry and manufacturing to the military effort. Technology also made rapid advances. Big businesses with their immense resources and ability to weather some turbulence and uncertainty would be fine. But the small and medium-sized enterprises that accounted for most businesses and were the true foundation of Canadian industry would likely struggle to find sure footing in the new world.

Both Howe and Mackenzie were engineers by training. They knew the ins and outs of business and manufacturing success. Over and above the basic resources and funding these businesses needed to stay on their feet, the two leaders also knew that access to current knowledge and expertise was essential. So, in 1945, when they found themselves waiting for a blizzard to clear so their flights could leave, they decided to solve the small-business resource gap. Out of this conversation grew the Technical Information Service, a new arm of the NRC. By 1947, this service was being delivered nationwide, through a network of experts in all areas of industry. Those experts offered advice and their scientific and technical know-how to help small Canadian companies transition from wartime manufacturing work to commercial or domestic offerings that could grow.

A natural addition to that service happened in 1962, offering strategic investments to complement NRC's advisory services to small and medium-sized enterprises. That addition was named the Industrial Research Assistance Program, making NRC an even more valuable resource for innovators in Canada.

Eventually, NRC brought the Technical Information Service under IRAP's wing. It was clear that both access to information and mentorship were indispensable parts of how NRC IRAP delivered its benefits to Canadian businesses. Over the decades, the program expanded in size and scope to ensure it would continue to meet the needs and challenges of the day.

Delivering value

From its formative years to the present, the program's goal has been to support Canadian inventors, entrepreneurs and visionaries, specifically those who use and develop innovations as part of their business strategies.

It is one of the only publicly funded programs in the world that provides government funding and resources directly to small and medium-sized companies only. In 2022, NRC IRAP celebrated its 75th anniversary and continues to grow, evolve and thrive to support Canadian entrepreneurs and their innovations.

Within Canada's innovation ecosystem, one of NRC IRAP's differentiators is that it continues to treat knowledge, experience and mentorship as indispensable resources in the world of entrepreneurship. Time and again, company founders have shared that those resources are even more valuable than financial contributions. From an experienced mentor, the right words of advice to a company or an entrepreneur can mean the difference between a breakthrough and bankruptcy.

NRC IRAP is built around a network of hundreds of trusted, proven experts in every field of science, engineering and business. They seek out, meet with and advise individuals and companies across Canada. These experts, called industrial technology advisors (ITAs), all achieved success in their respective fields before becoming ITAs. They not only know the technical field in which they operate, but also what it takes to run a prosperous business.

By getting to know their clients and learning about their business, ITAs can assess what resources the company needs to succeed. Sometimes that means introductions, referrals and connections. Sometimes that means applying a fresh perspective and bringing their own sectoral expertise to bear, so the ITA can offer input and veteran advice to nudge an entrepreneur in the right direction or propose new types of talent to hire, markets to consider or alternate distribution models. It can also mean financial contributions at critical times for completing a technology prototype, covering salaries for new hires or overcoming a technical obstacle.

After working directly with clients, ITAs can better understand what the clients are trying to achieve with their company and what resources they need to get there. Building on those client relationships, ITAs help high-potential businesses apply for programs and funding to support innovation or growth.

Long before reaching "unicorn status," defined as being valued at more than a billion dollars, Canadian software company Assent Compliance turned to NRC IRAP for expertise and support. Assent's CEO Andrew Waitman says, "IRAP has helped us on almost every level as a major resource and partner. That support aided us in attracting talented staff and led us to commercialize three software modules that have since shipped and now account for millions in revenues."

NRC IRAP has been ahead of the curve in supporting promising enterprises that venture into novel technologies. Knowledgeable ITAs who can accurately assess innovations and business potential are key to staying ahead, as are the analysts who do extensive market and competitive analysis to provide intelligence reports for riskier areas like emerging technologies.

Funding can reduce selected risks for startups as well as small and medium-sized enterprises. If a business qualifies for NRC IRAP funding, that money can address its most pressing needs, such as hiring more staff to ramp up research and development activities, or engaging with subcontractors to fill gaps in the company's technical or business expertise. Funding does not have to be repaid. Instead, the returns come in other forms; for example, NRC IRAP assessments look for companies creating innovations that are likely to generate wealth for Canada.

For companies that are not yet ready for financial support, NRC IRAP has formed a team of outreach staff of about 20 client engagement advisors to complement the role of ITAs. Collectively, this team of professional pathfinders has a vast understanding of the resources available to Canadian firms, both within and outside of government, and can quickly make the best connections to help companies along the road to growth.

Although a staggering number of breakthroughs and successful companies have shone with NRC IRAP support, it is not a magic bullet that wipes away all the risks nor does it take away all the hard work. However, NRC IRAP does provide essential expertise and support to remove some of the fear and make the journey clearer for entrepreneurs and innovators as they trailblaze in new industry sectors and develop never-before-seen products and services.

Entrepreneurism is both a universal and a unique experience. No two companies or individuals have the same trajectory. And yet, for all of the thousands of stories across the years in Canadian business and innovation, a surprising amount of the human experience involved is the same.

Within this book, Canadian entrepreneurs and innovators share their learnings from their careers. This book represents a sampling of the wealth of knowledge, ingenuity, experience and dedication present in this country. It celebrates Canada and its accomplishments.

May the generous advice, insights and lessons from seasoned businesspeople and successful entrepreneurs inspire more Canadians to face and tackle obstacles in their path. Obstacles are a reality, but they can be overcome and even be turned to one's advantage, especially when there are kindred spirits on hand in the form of fellow entrepreneurs and informed, trusted advisors.

CHAPTER 1

RISK

Lane Merrifield, co-founder of Club Penguin, remembers the tiniest details of the day when he took the biggest risk during his venture's early stages. That day marked the apex of everything he and his co-founders were putting on the line. He had no way of knowing what would happen over the next 10 months. The small Kelowna-based company would grow from one of the first online virtual worlds, designed specifically for kids, to become a worldwide phenomenon that Disney would ultimately purchase for $350 million.

"I was in the parking lot of the bank, about to take out a line of credit on my house," Merrifield remembers. "I can tell you the temperature that day, where the sun was in the sky as I signed the paperwork. I knew that if this didn't work out, I couldn't afford that loan and I could lose my house. While I knew that my family and I would survive, that we wouldn't starve, it was still the biggest asset we had, and I was betting it all."

No matter how large a company is, it can face many types of risks, including market, competitive, political, economic, environmental, reputational and technological risks. For startups, those risks exist alongside all-too-real financial and personal risks. Entrepreneurs might leave a stable job to invest personally in starting a business from scratch, remortgage a family home to keep a startup afloat for employees, and repeatedly miss family events due to business travel or long workdays.

Risk exists in nearly every enterprise because returns are unlikely unless entrepreneurs and innovators put up something of value, such as time, money, energy or ideas. As the saying goes: nothing ventured, nothing gained.

If starting a business were easy, everybody would do it. It takes incredible dedication, a solid but flexible plan and the courage to take chances. NRC IRAP industrial technology advisors help prepare entrepreneurs and innovators to identify, assess and face those risks. They cannot eliminate risks, but they often suggest solutions to address entrepreneurial challenges or connect individuals with programs that share some of the risks.

"They say when you start a company, it's like jumping off a cliff and then starting to build your plane as you're freefalling on the way down. And it is so true — it's terrifying. But, when I think of the NRC, I think of paratroopers flying beside me, passing me tools and giving me advice as we go, so I have help building my plane," says Amanda Hall, CEO and founder of Summit Nanotech, an award-winning Calgary-based company that focuses on clean energy.

Advice is of considerable value because trailblazers must wear and juggle many hats to cover all parts of their business, even areas to which they are less suited. They do so until they can afford to hire experts and delegate certain functions to them. However, that luxury tends not to happen quickly and rarely is entrepreneurial success achieved during spare time or as a side job.

Entrepreneurial people choose how to live their life and often their choice affects the lives and livelihoods of others. Entrepreneurial resolve goes beyond deciding "I want to be my own boss." It is more like: "I want to be solely responsible for my financial security, my family's (or future family's) stability, the happiness and prosperity of all of the employees who trust me with their careers and the success of the idea or product that has driven me to make this decision."

There are even some trailblazers who live for or crave those kinds of stakes. They wake up in the morning excited at the prospect of walking that tightrope and consciously decide to let risk be present in their lives.

Lane Merrifield knew what he was doing with Club Penguin was risky, but he was not staking his home on a spin of a roulette wheel. He was entering into a project with a solid foundation based on market research, technical expertise and trusting relationships.

In Merrifield's case, he partnered with Lance Priebe and Dave Krysko for Club Penguin. The three had worked together at Kelowna's New Horizon Productions, a boutique video and marketing company, which Krysko had started in the 1990s. Club Penguin was a partnership built on mutual trust and respect, using each partner's strengths to their greatest effect.

Krysko, who was older than his partners, had more business leadership experience as well as more money to invest in the project. But Krysko believed in and trusted Merrifield and Priebe. When it became clear that Club Penguin was a project that showed true promise, Krysko was willing to bank on his trust and belief in his partners to make sure the resources were in place to succeed.

Each partner was taking risks, but they eased those risks through their combined investment of skills, money and expertise. Offsetting the risks as much as possible is key to dealing with risk in any entrepreneurial endeavour. It becomes the entrepreneur or innovator's responsibility to do everything in their power to understand those risks, in meticulous detail. And then, they must counterbalance those risks by preparing and taking deliberate action.

Unavoidable and necessary

The strange thing about risk is that when looking back at sensational stories of businesses that failed, far more of those stories of failure involve companies that did not take a chance, but rather stuck to what they knew for too long and denied risks were present.

As an early social networking giant, Myspace met its demise by being slow to evolve its technology and failing to pay attention to up-and-coming competitors like Facebook. Blockbuster Video, the former retail giant for take-home movie rentals, clung to an outdated business model rather than adapt. There is a term for it: the success trap. When something is working for a company, particularly if it involves an iconic or revolutionary brand, they become reluctant to take chances, even when change or bold moves are necessary to survive.

Avoiding risk happens at Canadian retailers too. For much of the 20th century, high-end and discount department stores were household names that anchored major shopping malls in Canadian cities nationwide. Yet those companies floundered when the winds of change pushed the retail industry in new directions. Thinking the risk was not worth it, they did not take bold steps to grow, adapt and modernize their business models.

Attempts to avoid risk also happen on a smaller scale. What one person considers too risky might be the perfect opportunity for someone else. Taking initial risks and chances may even lead to early success.

Careers and whole business empires can be born from an opening that someone seizes after others have overlooked it. Arlene Dickinson is living proof as CEO of Venturepark and one of Canada's Dragons on the CBC's *Dragons' Den*.

"I didn't even know I was an entrepreneur, not at first. I was a working single mom, and out of necessity I needed to figure out what to do for a living and to take care of my kids. I had an opportunity to join a marketing company as a 'partner,' which was code for 'working for free.' And I had no other options at the time," Dickinson says. "I didn't run a business until I was 31. It was a small firm with two older partners who were always fighting. One wanted to retire and the other didn't have any drive to build the company. Eventually, their conflict led one of them to leave the company. The company became completely risk averse. Leadership was happy as things were. I wasn't.

"That was when I discovered that I really did have an entrepreneurial spirit. I loved the world of running a business and making my own decisions. I started to have a vision of what the company could be. I could see it, understand it, feel it. There was a real burning desire to take this opportunity. But I knew it was a risk. I would have to buy him out [the remaining partner], take over and be in charge of the vision," Dickinson says.

It was Dickinson's first foray into business independence, but even then, she didn't consider herself "a true entrepreneur", that came later.

"It wasn't until many years later, when I was in my fifties and started District Ventures (DV), that I think I 'became' an entrepreneur," Dickinson explains. “I could see this idea that became DV and fell in love with it. It felt the most like my unique entrepreneurial spirit, when I saw a vision that no one else could see. Everybody told me I couldn’t do it, that it’s going to be too hard, that it was the wrong time.”

District Ventures and Venturepark combine a venture fund, marketing, media, business accelerator, learning and mentorship into an ecosystem focused on early stage companies in food, health and wellness.

“I kept hearing that food and health weren’t top of mind for investors, that tech was what was sexy. It’s definitely where I took my biggest risk as an entrepreneur,” Dickinson says. “There’s even irony in it. I was already successful, so you’d think it would have been easy for me to go out and say, ‘I am going to do this.’ But it’s what they say about ‘true’ entrepreneurs: you see things others can’t, and you’re willing to put everything else on the line to see that vision come true.”

Despite prior business successes, entrepreneurs can and will face risk during their journeys. When confronting entrepreneurial risk of any type or size, it helps to have three factors on side: vision, confidence and support.

Vision is knowing the value of a unique idea or product, having a clear idea of where to go, and understanding what it will take to get there. Confidence is the clarity that drives entrepreneurs and innovators forward and fuels their motivation to keep going when risk presents itself or when challenges arise. Support comes from people the entrepreneur or innovator trusts, those who will stand by them, believe in them, motivate them and even challenge them or rein them in when necessary.

“Our industrial technology advisor ensured we did not get swept away by opportunity, putting in the systems and people necessary to ensure cost-effective execution. I cannot emphasize enough his artful blend of advice from the tactical to the more strategic. It’s only through our ITA’s intense engagement that we were able to find the path forward to raise production fivefold in a year: a considerable gain for any company,” says Drew Gilmour, co-owner, Hummingbird Chocolate, on NRC IRAP support for managing risk.

Too much of one factor or not enough of another will lead to deficits in other areas, creating potential hazards. Case in point, if all someone has is a vision for a product or innovation, but no confidence or support, then they have a mere idea, possibly an unproven one.

Plenty of confidence without vision or support may lead to aimless and overcommitted paths. Meanwhile, if someone has a strong vision and great support, but no confidence, they may only get as far as someone else pushes them. Before undertaking an entrepreneurial journey, individuals must build confidence in themselves, their ideas and their potential.

It sounds like quite the challenge, however, plenty of successful people started out without being perfectly equipped with vision, confidence and support. They invested equal parts of time, effort and courage to find or nurture their vision, confidence and support. In turn, those elements helped them build up their comfort level with risk and their skill at handling it.

Recognize one's appetite for risk

A good first step is knowing that innovators and entrepreneurs must take some gambles and be prepared to face them. And before anyone starts down an entrepreneurial path, it is useful to know how much risk they can stomach.

Many self-reporting online tests claim to categorize personal aptitudes, motivators and various personality indicators, risk tolerance included. To better understand what drives their employees or to measure whether potential candidates will be a good fit for a team, often recruiters, industry, professional sports and other organizations use all kinds of tests such as the Kolbe A, iEQ9, Caliper and Myers-Briggs. Executive recruiters will put potential CEOs through a battery of such tests to screen if the individuals can withstand and thrive in high-pressure business situations.

Beyond whether scientific evidence backs the questionnaires, the effectiveness of personality tests can vary because of countless internal and external factors. Maybe the test designers unintentionally introduced gender bias or maybe self-reporting individuals failed to answer questions truthfully. They may not have meant to lie. Sometimes they are fooling themselves by unconsciously answering questions with what they aspire to be rather than how they naturally lean.

Despite their potential pitfalls, such tests are widely adopted by entrepreneurs and employers who want help understanding motivations. By taking a Kolbe A assessment, Dave Russell at Russell NDE discovered he scores very high in what that system calls the "Quick Start" characteristic. This suggests he is more likely to take action or make a decision with less hesitation than others.

"It means that I'm more tolerant of risk and that I'm likely to take an informed chance when I can see the potential benefit," Russell explains. His own career history backs that statement. His entrepreneurial journey began with one major, years-long risk, but it was a calculated risk. He took on a project to transform a scientific theory into a functional product, without any guarantee of success.

In 1984, Shell Oil published an article in a U.S.-based trade publication. That article offered any interested parties the chance to purchase a licence to a theoretical method for using electromagnetics to scan and analyze the integrity of pipelines. Russell had founded Russell NDE more than a decade earlier, in 1972. He had done so strictly as a service business, not to design or build products of their own. But something about the Shell proposition set off a drive to explore and innovate that Russell could not ignore. He believed there was a potential to develop the technology using his own expertise as well as that within his company.

Russell's belief was so strong that within his company he set up an internal R&D division, funded entirely out of pocket. Russell and his team spent more than three years researching and designing. In the end, they launched the first product in the world that could use non-destructive electromagnetic testing on ferromagnetic materials. Put simply, his technology can detect weaknesses in water mains and pipelines before those weaknesses become catastrophic failures, causing oil spills, floods or sinkholes. He estimates that through early detection and prevention, millions of dollars in damage and repairs have been saved. He also knows that his technology kept environmental disasters and danger to humans from happening.

While there was an element of risk in what Russell and his company were doing, he believes sound decision-making backed the project.

"We don't do anything if we don't perceive a market pull. You should not be afraid to take some risks, but mitigate the chances you're taking by getting buy-in from your customer. Asking a customer to financially support a project will confirm that market pull and reduce your financial risk," Russell says. "If you can't get customer support, look for input from an outside source such as IRAP. The application process will force you to justify the expense of the development project and the team at IRAP who review your application will tell you if it's not technically sound."

Adopt the right headspace

"If you're going into a risky situation, and there is business upside driven by a potential client, imagine the realistic worst-case scenario," says Terry Matthews, co-founder of Mitel and founder of Newbridge Networks. "Now ask yourself if you can live with that outcome. Because if you can, then the risk is worth taking. But of course, if you can live with the worst case, go for the best case! And make sure you communicate well with your entire team to drive a win."

Matthews has been in business for more than 50 years, through the ups and downs of numerous successful high-tech companies, such as Mitel and Newbridge Networks. The information he has or gathers, along with his confidence in the business direction both shape his decision-making process in uncertain situations.

"Information is vital. And I like to move fast. But as long as I can generally see what's ahead of me, I'm comfortable," Matthews says.

It is that ability to anticipate what is coming, even when the road ahead is partially obstructed or under construction, that makes all the difference. Entrepreneurs can have opposite approaches. What matters is that they are true to what works for them. Where Matthews prefers speed, others move slowly.

Armen Bakirtzian and his partners at Intellijoint spent more than two years assessing market demand, product viability and, yes, the risk before making the leap to start the company. The Intellijoint Hip was Bakirtzian's first prototype, completed in 2008. He and his co-founders knew there was a need for their product, a multifunctional tool for orthopaedic surgeons.

While operating on a patient, a surgeon often needs to make real-time, intuitive decisions, and without precise information, some of these decisions mean patients will have a more challenging recovery. Intellijoint's innovation assists surgeons by giving them moment-by-moment measurements and data about the positioning of the replacement hip components they are implanting, enabling stronger decision-making and improving patient results.

But medical technology is a notoriously difficult field to break into. Regulatory requirements are steep and research costs can be astronomical. So, Bakirtzian and his team sat on their prototype for two years, waiting for the right moment.

Eventually, as Bakirtzian and his partners were completing their postgrad programs in 2010, the Ontario Centres of Excellence's annual trade show hosted a pitch competition. The Intellijoint pitch was a hit, netting them an $18,000 loan, with which they embarked on a four-month sprint to gather as much business intelligence as they could.

"We met with a dozen orthopaedic surgeons and said to them: 'Tell us this is a bad idea.' But at the end of our sprint, we had 12 surgeons who all thought we had a good idea," Bakirtzian remembers. "Maybe it's my engineer side that was looking for more and more evidence. Maybe it's that I'm a bit risk-averse to begin with. I was looking to be convinced that it was a bad idea."

Bakirtzian labels himself as someone who is "inherently an optimist, but also a realist." Being optimistically realistic is about being aware of risks without becoming pessimistic and seeing only potential pitfalls.

"I've always known that confidence is important and that you need to have it if you want a positive outcome. But you also can't ignore reality, skip steps and declare something a success," Bakirtzian says. "So, we built a risk-averse process to stress test our idea and our product. Once we did that, and built up our confidence, we were ready to take the full plunge."

Like Bakirtzian, Dan Provost at RAD Torque took things slow. Provost chose to avoid debt, which meant slower growth as he built his torque wrench manufacturing company. At the time, spending beyond his means was a risk he was unwilling to take, but that did not stop him from forging ahead with his enterprise.

"I did things organically and wouldn't buy anything for the company that I didn't have money for. There are always risks, especially in the beginning," Provost says. "I had a day job and I sold other products to get

RAD on its feet. But the risks diminish over time. You grow and bring in the right people."

Provost hired people who knew how to run a machine shop. He was convinced that to make the best tools they had to do it themselves. It was slow going at first, but now RAD has the machines they need, they cut all their own gears in-house, and they have engineers on staff.

"As you take small chances and small steps forward, you build a reputation, you build capital and then you can take more considerable risks," Provost says. "Even new relationships can be a risk, but that's how you build trust. Trust, and having people believe in your product, is the biggest thing. Take the time to build your network, visit your partners' facilities, pay your bills on time, break bread with the people you're dealing with. These efforts reduce risk in how you do business, especially in a small industry."

Rattle those roots

A person's background and career roots affect their tolerance for risk. Academia is by nature focused on rigorous examination, peer review and testing theories in controlled environments. Entrepreneurs who emerge from long careers or periods in higher education often want certainty and evidence that their ideas will succeed. One would expect it to take much evidence, and often outside influence, to nudge an academic into the world of entrepreneurism. And yet, Canadian universities have sprung plenty of innovators and innovations.

Stephanie Willerth, co-founder of Axolotl Biosciences, was comfortable in her academic position as a professor and researcher. She and her colleagues were already globally recognized as leaders in creating bioinks for 3D printing living tissue in labs, the media in which stem cells among other tissues are cultured for medical research and testing. They were making these inks and shipping them all over the world for collaborators, but not for commercial purposes.

"I'm on the conservative side when it comes to risk. In academia, you train long and hard, you publish papers, you work to get tenure and get a job for life. You get comfortable. I mean, we dress up in robes like wizards at graduation. It's a very traditional environment, with lots of chalk and lecturing," Willerth says. "It wasn't until I was at a conference that I started to think about doing it [starting a company], because I got tracked down and yelled at for an hour (in a nice way) by a big company's CEO about how we really should be selling our inks.

"My husband has worked for startups in the tech space, and I didn't want that model of taking in money, always chasing ideas, pivoting but not having a product," Willerth says. "I wanted to make sure there was a product. Being in academia de-risked that process to an extent, being able to do research and then go into the market."

Over time, the pressure grew for Willerth to build a startup. More people, like the CEO from that conference as well as a graduate assistant, who became co-founder of Axolotl, were asking Willerth, 'When are you going to commercialize your ink?'"

Another Canadian innovator and entrepreneur who found great comfort in research and lab work is Jacqueline Shan, founder of PBG BioPharma and Cold-FX. With two PhDs in Pharmacology and Physiology, she spent years in labs before striking out on her own.

"For the first seven years of my career, I was in a company just doing research and product development. I could have spent my whole career as a researcher and never worried about being bored with nothing to do," Shan says. "But then, one day I realized that to keep developing the products I was most passionate about, I would have to become an entrepreneur. And there are risks in all of it, financial and reputational ones. All of a sudden, you're the CEO, finding money, going to investors, developing the product, finding a market, selling. You worry about the survival of your company, your responsibility to investors and employees. It was a great risk, one I didn't even fully realize in the beginning.

"Still, I find that the risks are overcome by belief, by confidence in the science, and by believing that you have an effective product that will be good for people, and bring rewards to your investors," Shan adds. "And you build an ability to see those risks better over time. Once you know more, you learn to manage the uncertain areas and build a better means to address them. You broaden your network of advisors, supporters, even Board members who are behind you to help mitigate the risks."

Environment has a significant influence on one's drive to take an idea to market. Academia is one such influencer, but so is government.

Alan Winter of MPR Teltech, and subsequently British Columbia's Innovation Commissioner, began his career at the Communications Research Centre in Ottawa, which was affiliated with the NRC.

"I started on a little project which nobody thought would go anywhere: search and rescue by satellite," Winter remembers. "My family members were always entrepreneurs, so I assumed I would be one too, but I was also interested in science and the space program. The only meaningful way to work in those areas was in government labs."

Research in those environments can move slowly. Winter came into a project that had been in development for decades. In 1958, Harry Stevenson, a researcher at NRC, had created a device for aircraft to broadcast their position in emergencies, the crash position indicator. Winter joined the project in 1973, when the next potential step involved using satellites in search and rescue, increasing range and accuracy, and helping search crews reach crash sites more quickly.

Although Canada is the second largest country on the planet, Canada's relatively small population lives in pockets that dot the country and are surrounded by wilderness and water. When a plane crash happens far from a population centre, it is quite challenging to quickly pinpoint the crash site.

Winter and his colleagues spent years developing the technology that eventually became the COSPAT-SARSAT system, combining prior crash positioning technology with satellites in orbit to pinpoint signals.

Despite its potential to help save lives, the project was not a high priority at the time. It can be tricky to find funding for projects with uncertain results. All the same, Winter and his team were confident in their technology.

"We knew it was feasible to pick up these signals by satellite," Winter says. "We did the work, but the only way to persuade our client was to take a big step. We had to do a demonstration with an amateur satellite, very amateur, in a live test. We knew that if we could pinpoint a crash indicator within 20 miles, they would be pleased.

"We had one chance. We managed to convince them to come to our comms research centre. We all huddled in a hut at our research centre, both teams, machines whirring all around," Winter says. "Our client gave an EPIRB crash indicator device to someone on his team and sent them hundreds of miles away in a helicopter, to a position he had marked on a map. Once we got word it had arrived, we started our process. Within 20 minutes, when our satellite passed overhead, we had our data and we managed to pinpoint the location to within 10 miles of where he had sent the helicopter. After that successful test, the path was clear to get funding for the project. We went on to form an international system of satellite search and rescue in partnership with the USA, France and the former USSR."

In the first six weeks of operation, the system resulted in two successful search-and-rescue operations: one in a mountain valley in northern British Columbia and one in the Atlantic Ocean, nearly 500 kilometres east of Boston. The system Winter helped create has been credited with saving thousands of lives since 1982.

Even innovators from seemingly slow-moving sectors or guarded and risk-averse backgrounds can achieve amazing things. It is a matter of challenging conventional ways or rattling their roots, building the necessary confidence, gathering support and understanding when to take the leap.

Finding the information and balance

Long-time entrepreneurs develop a special sense for evaluating risk versus opportunity. Weighing risks and rewards is the classic way to figure out whether to proceed, such as assessing a situation or calculating a financial investment's potential.

Information is a potent weapon for reducing risks in a situation. Extra details can shift someone's perspective or reassure them. For example, suppose a room has 10 numbered doors, and someone is told they must escape by only opening a single door. The catch is that a caretaker warns that venomous snakes are waiting to attack behind "a few of the doors." What a difference it would make if the caretaker said instead, "Three of the odd-numbered doors have snakes behind them." That added information would increase the person's odds of escaping safely.

For entrepreneurs, knowing their target market, clients, technology, competition, employees and so on can reduce surprises and risks. So, before taking a leap or making important decisions, entrepreneurs should first collect the essential pieces of information as their knowledge base, which improves their odds of choosing to open doors that are less likely to have "snakes" behind them.

Those who rush ahead and decide on a path without planning or thinking, without gathering information to measure risks, are reducing their chances of success. They may as well be basing their door choice on their "lucky number."

Surprisingly, instinctive "gut" feelings can play a part in decisions. But the thing about gut feelings is that they tend to be more trustworthy in people who have put in the time and effort to become experts in their field. That is, people who spend years, in some cases decades, collecting information and evidence to help them make smart or informed choices. These folks can develop an extra sense for quickly understanding when a risky move is warranted and when to avoid it.

That refined understanding helps show that there is a fine line between confidence and arrogance, and between being bold and being reckless. Unchecked ego and unmeasured risks are behind the idea of "the bigger the risk, the bigger the reward." That may lead to an individual's or an enterprise's downfall.

"It's a myth that entrepreneurs need to take giant risks to succeed," says Scott Phillips from StarFish Medical, a medical device design firm that partners with other companies to provide its expertise in creating new medical technologies. "It's more that they need to be willing to live with uncertainty, of having engineered their lives to be okay with not being sure how something will turn out.

"I believe it's a matter of risk versus uncertainty. You can't just hire 10 people and not know how you're going to pay them. That's not what risk is about. Sure, we all want a bigger payoff, but you need to learn to imagine your way through it," Phillips says. "Even if there's some uncertainty, you should at least be able to look at a situation and say, 'In principle, these things should work out.' You develop an intuition for risky situations, and move a step at a time, so that even if you fail at step one, it's not a giant hole you've fallen into."

It is essential to know exactly where that line resides, the one dividing acceptable and unacceptable risk. And that line will be different for every individual. One individual's line may shift, depending on which industry sector they are in or as they reach different milestones of life.

The ability to sense that line may not come naturally to everyone, especially early on in their career. One can start to develop that sense and learn required skills by working in environments where risk is handled institutionally. It can also help someone learn lessons and explore how they might approach risk differently.

Just as individuals are comfortable with taking on varied levels of risk, some workplaces will be more or less open to taking chances. While large companies have more resources and may be willing to invest in people or projects that invite risk, they usually have to balance that risk with shareholder expectations and financial targets that must be met. Government organizations can give people the room and resources they need to grow, but they are guided by fiscal priorities and responsibilities to the citizens they serve. Academia gives researchers and professors an environment for exploring innovation and teaching young talent. To take major leaps and risks, entrepreneurs eventually need to step out on their own.

Increasingly, there are people working within all kinds of organizations who are encouraging individuals to take chances.

At the University of Victoria, for example, as Dean of Engineering, Mina Hoorfar is deliberately bringing an entrepreneurial attitude to her department. Even though she comes from a purely academic background, she has seen firsthand the necessity of adopting an entrepreneur's attitude to taking chances and applying it to post-secondary research environments.

"Growing up and doing my undergrad in Iran, I went to a politically strong university, which was very old-fashioned. But the world is changing. After undergrad, my supervisor brought up the idea of thinking outside of the box, but I didn't think of myself as good at it. I had to learn," Hoorfar says. "When I started as faculty at my last job, at the University of British Columbia, Okanagan, I realized it was up to me to help shape the talented young people who came in. 'This is my lab, and I'm going to give my students the sandbox to innovate. I'm going to shoulder the risks,' I told them.

"There isn't always an opportunity to think about work in that way. But to be an entrepreneur is to take risks. And I knew that if one in one hundred of the ideas that came through my lab leads to something, that's a win. And often, the first idea isn't what ends up leading to success. It's a combination of luck, fate, timing and perseverance that takes you in a new direction," Hoorfar says. "One of my first major successes in my lab came from a student who developed the first breathalyzer technology for diabetes detection. And that wasn't what he started out to develop. I took it as my responsibility as director of the department to be looking forward, thinking entrepreneurially and nourishing my students by giving them the space and resources they need."

Whether in academia, the business world or government, it can be crucial for innovators to find a space where they can be supported in taking risks and pursuing developments.

For Paul Westdal, President of TheoryMesh, it was a chance meeting with the right person at the right time. In the 1980s, Westdal worked as an agronomist. He believed a huge opportunity was being overlooked by focusing on canola as a crop purely for oil. He believed the plant's protein was of high value as well, despite industry having dismissed it as having "unfavourable characteristics."

When Westdal attended a Canada Grain Council meeting in 1991, he heard Don Murray, a prominent scientist in the industry, deliver a presentation about the potential of processing canola for protein. Westdal knew he had found a kindred spirit.

"I was focused like a laser beam. I had just heard the opportunity I had been looking for. I said to Don that I'd like to hear more about his ideas, and he agreed to meet," Westdal remembers. "We had lunch and agreed to take this little nub of an idea and commercialize it. That was the moment everything came together and led to our founding BMW Canola."

Their journey was not without its challenges, but they persisted.

"Since the entire focus of the industry was on the value of oil in canola, there was quite a job to do shifting the attention to the protein side. But Don and I were convinced. From 1991 to 1999, we did the work totally on our own. We wrote cheques ourselves using our 'milk money,' whatever we could spare ourselves from our day jobs, $200, $500, $1,000 a month," Westdal says. "It just took that confidence in me from Don, one of the better protein scientists, saying, 'I'll back you up on the technology, you gotta do all the rest' to get us going."

Westdal is not alone. Other people in this book, like Merrifield and his co-founders at Club Penguin and Provost at RAD Torque, used their own money to get a company off the ground. In 1972, Terry Matthews borrowed $3,000 against his house to cover all his living and business costs when starting Mitel with Michael Cowpland. As a single mom, Arlene Dickinson bought out the owner of her company.

Putting so much on the line can sometimes make the entrepreneurial journey feel like a roll of the dice. But it does not have to be that way. The risks can be shared. In Canada, entrepreneurs and innovators have access to a range of resources and funding for new and growing companies.

No doubt, risks are harder to face all alone. Having even one like-minded soul can make a difference and serve as a supportive foundation for entrepreneurs or innovators. It can be a business leader, someone in a lab or anyone who believes in what they are doing. Entrepreneurs and innovators often lean on NRC IRAP industrial technology advisors and seek out their counsel. As mid- and late-career professionals, they are trusted advisors with a wealth of private-sector experience. They provide a unique blend of expertise, information and resources to assist others who are navigating every aspect of the innovation process.

Regardless of how supported someone is or whether they come from a risk-averse background, the reality is that risk is an ever-present part of business. But with support, vision and confidence, entrepreneurs and innovators can live with, prepare for and accept risk.

That is the opposite of taking unnecessary, excessive risks. When it comes to entrepreneurship, the more informed individuals are, the better prepared they are to spot risks, mitigate them and take action for their startups or innovations.

"Never bet against innovation. The best entrepreneurs I know have no greed, no guilt. They follow their passion and understand the value they create," says Louis Têtu, Chairman and CEO of Coveo. "Fundamentally, entrepreneurs are people who wake up in the morning and refute the status quo and are willing to take action."

CHAPTER 2

COMPETITION

When humans spot a threat, the brain can automatically default to an animalistic fight-or-flight response. That same survival instinct can kick in for entrepreneurs who think of competitors as threats. And yet, crushing the competition or fleeing from it are not the only options.

Despite the common belief that success means beating the top dog, succeeding in business does not have to be predatory. Too often, entrepreneurs and business owners think they must take down their rivals by outselling, outwitting, outmanoeuvring, rolling back pricing or winning at all costs.

Sometimes an innovative product or service has no immediate competition. In such cases, the entrepreneur or company might resort to competing with itself by striving to be better than it was yesterday. Or, market demands and shifting consumer expectations may be the source of more pressure than any single competitor.

In reality, competition is healthy and comes in many forms. By working with thousands of businesses, industrial technology advisors (ITAs) at NRC IRAP have repeatedly seen how important it is to understand all the ways to deal with other companies in a market or an industry. They also encourage clients to build relationships and connections with other entrepreneurs and even ally themselves with competitors. Time and again, NRC IRAP advisors will work their own networks to make introductions and help those entrepreneurs meet potential allies.

When they meet, rather than seeing ruthless threats, most competitors bear the face of regular human beings with genuine feelings, extending across the range of human experience. Seasoned businesspeople learn to spot which of the many faces of competition are in each situation and they react accordingly. When faced with a rare predator, the experienced and successful entrepreneurs take note and move on to seek out entrepreneurs or companies better suited as an ally for growing an industry, strengthening a supply chain or speeding up product development.

During her career, Arlene Dickinson has owned, managed, invested in and created businesses, earning her the honour of being named among Canada's "Most Powerful Women." As CEO of Venturepark and Managing General Partner of District Ventures Capital, this long-time dragon on CBC's *Dragons' Den* admits she is still learning and she has changed her attitude toward competition.

"I would have described 'competition' very differently 30 years ago. I would have said, 'Be careful. Protect your borders. Protect your ideas. I'm not going to tell you my idea because you're going to steal it.' But now I know that when you ally with others, the strength of what you can build together, in true ecosystems, is enormous," says Dickinson.

Business plans should identify and analyze competitors and their capabilities. It is only by knowing who else is out there and what they offer that business owners can learn how to differentiate themselves and their respective businesses. Understanding the competition can even lead to surprising turns.

When Stephanie Willerth and her partners at the University of Victoria were putting together Axolotl Bioscience's business plan, they assessed the market they planned to enter.

Axolotl creates bioinks and tissue models for 3D bioprinting, a rapidly advancing field. Their novel approach led to the company finding a unique niche in a market where they first expected it to be a challenge to stand out. Willerth identified a company that she and her partners considered to be Axolotl's closest and fiercest competitor.

"I did a SWOT [strengths, weaknesses, opportunities, threats] analysis and thought about who our rivals would be. In reality, what I thought would be our biggest rival became a tester. We did one round of testing with them, and we're about to do a second," says Willerth.

Axolotl first developed its inks using equipment from that company, Aspect Biosystems, and they worked together to share testing data. This allowed Axolotl to expand, improve and refine its own product. It helped them understand more about the full scale of the market into which they had just entered.

By building relationships in the community and industry, Willerth and her team had helped to smooth the way forward. She credits her background as both a researcher and a professor for having taught her how to work alongside, rather than against, companies like Aspect.

"Collaboration and competition are everywhere in academia, so there is always an element of community. You build relationships. It's open and interdisciplinary," says Willerth. "I found people who were interested in blurring the boundaries between science and engineering. And if you're upfront about what you want, they are upfront about what they want."

In turn, Willerth describes her working relationship with Aspect as "really collaborative. They know me, they know my work, and they're excited to use our tech. They've given us test results and feedback on customer-facing user manuals. It's even led to agreements with other 3D printing companies."

Instead of fighting for the same market share, these two companies found their parallel interests, products and expertise. They formed a positive relationship and became invaluable assets to each other, not opponents.

Asking for help is human and a strength

In the dash to reach the top of a market, it is easy for entrepreneurs to forget to be, or to purposely avoid being, vulnerable and compassionate. However, businesspeople must remember that their competitors are all human, just like them.

Initially, Amanda Rhyno had no intention of going into business for herself. Quite the opposite. As the daughter of an entrepreneur, she had grown up seeing the ups and downs of running a small business. She remembered the late nights and stress that her father endured pounding the pavement, pushing and fighting for every dollar and every bit of progress.

Much later, when she was pregnant with her first child, the fates intervened. Rhyno found herself with a purpose and determination to launch her own wellness-based business. She was making products that gave her major benefits to her own health and wanted to share those with as many people as possible. As a single mother, it was up to Rhyno to build her own business and her own support network.

But, the idea of vulnerability weighed heavily on her as she started out. Rhyno worried about the stigma or biases of what makes entrepreneurs look like they are succeeding.

"I thought that I needed to look like an established business to be considered to have trustworthy products. And I worried that if I reached out for help in any way, that it would shake the trust of potential customers in the products and the business. But it's part of the natural process of being an entrepreneur, seeking out guidance and mentorship and connections. I've discovered that, regardless of how large the business grows, the seeking of guidance and help is never-ending.

"The more you struggle and continue to reach out for support, you realize how human it all is. The feeling shifts from 'What will people think if I'm reaching out for help?' to realizing that even the successful and courageous people are struggling, seeking mentorship, seeking funding. All small business owners have been negatively affected in some way or another, so I want to view others not as competition, but as allies. There is potential to learn from each other's struggles."

Rather than falling into the trap of constantly comparing oneself or one's business to another, entrepreneurs can learn from those who have travelled the entrepreneurial path. Whether their NRC IRAP ITA shares their direct experience, introduces them to someone in their industry or gives them access to services they need to grow, the entrepreneurs can gain advantages from the life experiences of others. Asking for help and sharing guidance are not only human, those actions can also lead to strength and resilience.

A formal partnership or merger is not necessary for businesses to ally with one another either. To ally can mean working shoulder-to-shoulder, learning from each other, and yes, competing from time to time, all in an effort to grow an industry. With a broader treatment of competition, a market can grow from just a few million dollars total global revenue in the 1970s to an estimated US$160 billion in 2020 alone. Industrial technology advisors at NRC IRAP know it is possible, because the video game industry did exactly that.

Before Paul Lee became Managing Partner at venture fund Vanedge Capital, he started out at a small startup software and gaming company in Vancouver in the late 1980s and early 1990s. That company enjoyed modest success, but everything changed when it was acquired by what would become a multibillion-dollar company, Electronic Arts (EA).

At EA, Lee became a leader in an organization that gradually grew to more than 9,000 employees, with dozens of studios worldwide. A far cry from the original 300 employees, which included the 75 or so from Lee's company. At the time Lee joined EA, that company was roughly the same size as its nearest seven competitors. Later, EA would be as big as all seven of its closest competitors combined. But that growth would not have happened without robust competition in the marketplace.

"For my first 10 or 15 years in the industry, when I said I was making video games, the response would always be the same: when are you going to get a real job?" Lee says. "It was a very small industry back then. And while you certainly could go out and have a bloody fight to the death with your competitors, the reality is that when they do well, when everybody does well, more people come to video games and the overall market grows."

EA was one of many companies in a growing industry. They were all doing their own thing, creating new games, new worlds and characters, all looking to create their own hit properties and build their own, new customer bases. Companies would collegially interact or competitively challenge each other here and there, chasing an ever-growing clientele. Their interactions went beyond expanding the strength and influence of a new industry to creating a whole new form of entertainment. Together, the companies would eventually turn a novelty industry into a behemoth.

Without healthy competition, there would not have been the breadth of products to transform video gaming. Initially, many people failed to take it seriously or they wrote it off as attempts to digitize quarter-sucking arcade games. How mistaken those detractors were. Video gaming is an annual multi billion-dollar force of nature. In some corners, video gaming is viewed as much as an art form as movies, music and television.

The climate of friendly competition and collaboration also pushed EA, Lee and his fellow leaders to adapt. They learned to keenly observe the market and to take an active role in strategically building not just EA itself, but the video game industry as a whole.

As this evolution took place, perceptions of video gaming changed along with the industry. By then, Lee no longer fielded questions about when he was going to get a "real" job.

Neither rosy nor grey

"Paranoia is an asset for entrepreneurs. I think it's healthy," says Armen Bakirtzian, co-founder and CEO of Intellijoint, a medical technology company. Clearly, he views the competitive landscape with more caution.

"Newer entrepreneurs aren't as paranoid as I am," Bakirtzian says. "Incumbents in the field don't want you there. Who wants to be disrupted?"

That attitude may seem a bit brash, but there is an underlying note of truth. While alliances can be positive and mutually beneficial, it is important to make sensible choices about which partnerships to pursue or land. Entrepreneurs must be aware of the risks they take, particularly with sensitive or proprietary technology, and of course, with money.

Bakirtzian goes a step further. He advises any new entrepreneurs to be wary of positive attention from the competition. From a vantage point like his, beneficial arrangements like Stephanie Willerth and Axolotl's are few and far between. He believes that the big players in a given industry will play to the naivety and inexperience of new entrants.

"I try to encourage others: be fearful of the major players. They're there for a reason, not from being nice to everybody all the time," Bakirtzian warns. He also considers major corporate-sponsored incubators, such as JLabs in Toronto, to be mixed blessings, saying, "Ultimately Johnson & Johnson wants Johnson & Johnson to do better."

This attitude can vary from industry to industry. Intellijoint's field is medical technology, which is notoriously hard for newcomers to break into. The barriers to entry on both the technical and financial sides are prohibitively steep. New technology can take years to develop, licence and obtain approvals from regulatory bodies. Clinical trials can run up R&D costs to hundreds of millions of dollars and take precious time. The incentive to fiercely protect one's intellectual property and market potential is incredibly strong.

Many factors influence where an entrepreneur sits on the spectrum between camaraderie and paranoia with industry rivals, be they large or small. Those factors can include: the personal and financial risks at play, the time and money invested in an endeavour and individual comfort levels with (or aversion to) risk itself.

With those factors in mind, it is up to everyone to make well-considered and well-informed choices suited to their own business.

Unwilling to settle for anything less than the best?

Some people will only be satisfied with shooting for the loftiest goal: to be the best. There is nothing wrong with having a drive to succeed. Many businesspeople find joy and purpose in striving to get to and stay on top of the heap.

One way of achieving that is to have the best idea.

In select industries and at certain times, there is likely to only be one best idea. That is implied right there in the word "best."

Although generally speaking nothing beats the best, maybe someone advances because of a solid understanding of a market, expertise to create a solution that meets a need that is not being addressed and the determination to make an impact.

Take Dan Provost at RAD Torque. He started out his career by selling and distributing torque wrenches and their related parts, such as gearboxes, for a European manufacturer. But Provost knew that there were potential improvements he could make. His customers wanted smaller, better engineered machines. They were also looking for a Canadian-made solution.

"I started out working for the company that I based my design around," Provost explains. "I bought my first gearboxes from them. I respected them as a company, so I wanted to follow all of the rules. I went and did my research, looked into the company's products, designs and found that they didn't have a patent on what we wanted to do."

Completely new ideas are rare. Nearly all innovation is built on iteration, on creating better versions of what came before.

Provost applied his expertise to design and manufacture a more effective gearbox for the equipment he produced. He created smaller, lighter designs. He engineered his equipment to be sturdier. His company eventually designed the world's first battery-powered torque wrench.

Provost's ITA calls him one of the most purely successful entrepreneurs he worked with over his time at NRC IRAP, all from an otherwise unassuming figure. Provost has no high-tech or academic background. He does not fit the stereotype of an entrepreneurial wunderkind. He is simply someone talented who knows how to take a deep dive into a problem to find an innovative solution, someone who knows how to give customers what they want.

"I started out targeting just the mining industry," Provost says. "I put together tools for very specific tasks. Then we targeted other specific industries. We'd customize tools for specific pieces of equipment. Clients would be thrilled so we would release a whole kit. We grew slowly, being very picky around what we would do."

It was this careful attention to his customers' previously unmet needs that allowed Provost to enter the market and helped him drive RAD Torque to greater and greater success. The company gained a reputation for doing the work to understand exactly what specialty industries needed to achieve their complex tasks and providing them with the quality equipment to do those tasks.

Sometimes that meant spending a week in a mineshaft watching a crew work and observing how crews used their equipment. Other times it meant talking to work crews in the field and discovering that existing tools put enormous strain on both the operators using them and their environment. Traditional tools were causing extreme noise and injuring crews at high rates, from impact vibrations to carpal tunnel syndrome. Every time Provost and his team found a new challenge, they would apply their expertise to create a solution that met a problem's exact parameters. RAD Torque's clients reacted with immediate gratitude.

Even though RAD Torque may not have had a multinational's vast resources, nor the recognition of being one of the industry's major players, Provost and his team built a loyal customer base and earned a reputation for doing great work.

Soon RAD Torque became the competition that others were looking up to. The company gained that status through high-attention, low-risk moves that played to its own strengths.

Often, NRC IRAP clients benefit from their advisors either having contacts within their industry or witnessing what has happened with parallel situations in other sectors. An idea may not be novel, but it can be newly introduced in a more focused way, to a different industry, another application, an extra product area or an alternate geographical region.

Protect intellectual assets

A tangible way to help head off competition and gain credibility is for entrepreneurs to consider protecting intellectual property (IP) for their new advancements.

It may sound like an obvious step, but it is surprising the number of companies that fail to adequately shield their achievements from being scooped up by competitors or others.

"If you don't have your IP protected, you've got nothing," says David Armstrong, founding President and CEO of IatroQuest, later Executive VP, Innovation and Regulatory Affairs.

IatroQuest was involved in material science, using Armstrong's work in nanotechnology and biomaterials to create advanced artificial skin technology for wound care and biological and chemical warfare protection. Based on his experience, Armstrong feels having technology covered by patents or other protections provides not only security, but also credibility.

"When you go out for angel capital, you need something you can sell. That's your intellectual property. Having protections in place shows not only that you're serious, but that it's worth protecting. If your idea can't be protected by patents, it's probably not worth much," Armstrong says.

Having ideas locked down is one side of the coin. The other side is knowing enough about the technological landscape of an industry to make sure those ideas are not infringing on others' patented ideas. When an idea is already out there, patented by another company, knowing sooner rather than later can save a lot of headaches down the road. The Canadian Intellectual Property Office maintains a searchable database of all Canadian patents.

Before conducting a thorough search of such databases, entrepreneurs must know as much as they can about where their innovation fits into the marketplace. Knowledge gaps, naivety or inexperience can lead entrepreneurs astray and can be costly. ITAs are able to connect NRC IRAP clients with people who not only have industry experience, but also who are skilled at searching patent databases.

Additionally, during Budget 2021 the Government of Canada announced investments for NRC IRAP to expand its services for high-growth companies and Canadian intellectual property. ITAs can access dedicated tools to help companies protect intellectual property.

ITAs may also put entrepreneurs in touch with contacts at accelerators, incubators and patent firms. The value of ITAs' networks is that they span all kinds of sectors and help meet the needs of companies no matter where they are located in Canada.

Before searching through databases or making introductions to a network contact, ITAs often advise entrepreneurs about whether their technology is novel. A cautionary story that has been passed around by ITAs speaks to the importance of entrepreneurs understanding their market, their competition and their own ideas.

The story began many years ago when a brand-new ITA went to speak to his first client. They met in the client's basement workshop. There, that client showed the ITA a wall-mounted device. It was rectangular with a knob on it.

The client smiled proudly as he displayed his creation, turning the device's knob. The lights in the room dimmed gradually. He spun the knob in the opposite direction and the lights grew bright again.

After a few seconds of silence passed, the ITA asked: "So, you built a dimmer switch?"

The client looked at the ITA with a puzzled expression. He wondered how the ITA knew about the work he had been doing.

After further conversation, the ITA overcame his client's uncertainty by taking him to a nearby big-box home improvement store. This story takes place not in ancient history, so while these sorts of stores were not widespread in communities throughout Canada, they were somewhat common in larger centres.

The ITA led the client to the store's lighting section. One of the aisles featured dozens of dimmer switches hanging on the wall, all hooked up to lighting fixtures for customers to try. After turning knobs that raised and lowered the dimmer switches on a number of the available products, the man looked despondent, tears in his eyes.

His idea, his creation, his very plan for the future was falling to pieces. His idea had already been manufactured, was boxed and available on store shelves at affordable prices.

That was an uncomfortable moment for both men. But it was also a necessary eye-opener for a potential entrepreneur. His idea was not bad. After all, consumers could buy hundreds of similar products from hardware stores. It was his timing that was off. So was his competitive research.

Compare that with the RAD Torque example. Provost wasn't inventing something new from scratch. He was listening, iterating and improving, based on what the market really wanted and needed.

An object lesson, then, for budding entrepreneurs. Other than making sure that ideas are valuable and marketable, entrepreneurs must check if anybody has already beaten them to it. In the dimmer switch case, by a considerable amount of time.

Learn to listen

Competition hones ideas. It sharpens innovation. It is a gauntlet from which the best or most marketable solution emerges victorious.

Most of the time.

History is also littered with also-rans, where the technology or idea was in many ways demonstrably better or ahead of its time. Before the age of Google, YouTube and Facebook, there was AltaVista, Myspace and Friendster. Before online streaming services for music and videos existed, Betamax and laserdiscs lost the fight for home video technology to VHS tapes. Whether better or not, they were trampled in the marketplace. Marketing, consumer preferences and timing led to those technologies falling by the wayside, despite offering a seemingly better or earlier solution.

So how can entrepreneurs sidestep such a fate? As shown in RAD Torque's example, it is crucial to know as much as possible about the market, which covers competitors and their offerings as well as the needs and wants of customers or potential customers.

Terry Matthews, co-founder of Mitel and founder of Newbridge Networks, lives that philosophy. Big time.

According to Matthews, "Rule one is to always listen very carefully to what your potential clients want. If you listen to what they want, and then go and build what they say they want, they will pay you for it."

As absurdly straightforward as that sounds, it is too often the reverse of how entrepreneurs or innovators approach situations. Matthews thinks that believing "I have a great idea" is a trap for an entrepreneur, and one they may lay for themselves.

Matthews warns that it is tempting to get caught up in one's own idea and not listen to where the market is heading. By learning to listen to clients, he says, "They'll not only tell you exactly what they want, they'll actually buy it, and even explain to you what they'll pay for it."

"Our first product, in around 1972, was a tone receiver in telecommunications," Matthews explains. "Offices needed pushbutton phones but were all using rotary dial phones. Our competition was selling receivers for rotary phones for $1,500 a piece, each in a 19-inch rack. We could put 18 of our receivers in one of those same racks, and we were selling them for $150 a piece. I almost even felt a little guilty at the time about charging $150 because it was 80 percent gross profit. We made a million of those units. That's one of the first things I learned as soon as I started a company: listen to your clients."

Once Matthews' experience and his companies grew, he went from being a disruptor to how the industry giants did business and became one of those titans himself. But he never lost sight of the importance of respecting his competition, regardless of the size or scope of the companies he dealt with. From an innovation perspective and a business perspective, he believes it simply makes sense to always be seeking out and nurturing relationships with other companies in your industry. One never knows if and when a mutually beneficial partnership can materialize.

"In the last few years of my first run with Mitel, from about 1981 to 1983, I made sure to surround our company with startups to create an entire ecosystem," Matthews says. His reason was that even at big companies, there is only so much money to go around for things like research and development, which is always pivotal to a company's ongoing evolution and growth.

"R&D spending is often a function of what your clients are asking you to do, what they're looking for in the next release," Matthews says. "You always want more money for things like R&D, but you also have to base that on the visibility you have of your clients' requirements."

In large public companies, businesspeople must report to shareholders and boards. Organizations need to operate strategically, even conservatively, to protect their shareholder value. It is harder for those companies to justify diverting budgets from money-making products to pour funds into R&D for developing products that might or might not succeed, especially if their clients are not asking for them.

Smart companies do what Matthews did at Mitel: establish strong relationships and build an ecosystem of like-minded teams in the same or a complementary area. Those efforts organically create a rich pool of talent, ideas and resources from which to draw, when or if the next need arises to innovate and diversify.

"If a partner company is doing R&D, that's on their budget," Matthews says. "If the DNA in the company is right, and you've developed a good relationship, then you have equality in the way you deal with these other companies. You can't come in and say, 'I'm the big guy here, you do as you're told.' They will go away, and you'll lose that asset. But if you treat them with respect, develop the partnership, it becomes a symbiotic relationship: the smaller company gains the visibility that the bigger company has, and the bigger company gains business from accessing the smaller's R&D."

As Matthews notes, it all comes down to simple, mutual respect. If a large company knows of a small company that is doing something that adds value, then the large company can maintain and grow client relationships on the smaller company's behalf.

He adds that the flip side is true too. Smaller companies deal with potential clients and often draw the big company to unexpected opportunities. "Big companies don't always understand the importance of developing this sort of ecosystem, but it's a big thing, with big upside."

Count on different views

During his career, Peter Paulson, co-founder of Pure Technologies Ltd., a leading pipeline assessment and inspection equipment company, has also seen these types of relationships between companies play out. He believes in the value of both cooperation and friendly competition. But, as other entrepreneurs and industry executives have shared, he also emphasizes the importance of caution and thinking strategically, considering one's position.

"Competition is both terrible and great," Paulson says. "It's something you need to learn to navigate throughout your career. There are often whole groups of companies out there that actively seek out smaller ones to keep an eye on for new developments. They know it's good business to align oneself with young developers and researchers with good ideas, or even to be able to acquire or control them down the road. Some smaller companies may initially be thrilled to see a big competitor approach them in a friendly way. Don't be surprised, it's a strategy."

What entrepreneurs at a small company see from their particular vantage point at their company will and should influence how they approach business decisions, new projects and potential competition.

"A lot of the biggest developments we made at Pure were from seeing something in the marketplace and then coming up with something better," Paulson says. "And depending on where you're operating from, your approach will be different.

"Let's say you're a small tech company, and you've got a new idea. And suppose the competition is quite a large company: 500 employees, big R&D department, on-staff developers, software and hardware engineers, etc. That big company sounds scary, but they have to go through an internal bureaucracy," Paulson adds. "When you're a little company, you can get something done in a few days. If what you're doing works, you can move forward; if it doesn't, no harm. If I'm going to compete, make the other guy a big company. They can always beat you in marketing, but if you can create a better product, more quickly, sometimes even at a better price, then your marketing problem is solved."

Knowing what new ideas might encroach on an existing market space is very useful as well. And sometimes that can even help entrepreneurs to know and decide which roads not to go down. Paulson remembers making such a decision about technology that a university in Eastern Canada was developing.

"It looked fabulous, and if it worked, it would have really threatened our acoustic monitoring technology at Pure. But their tech was taking years to come to market, seven years from start to commercialization. We looked at their patent and figured we would try it out in our own testing labs," Paulson recalls. "Once we tested it, we found that it didn't work nearly as well as our existing tech. It took us less than three weeks to figure that out, and in the process, we ended up with a new, better system, which we then patented ourselves. That flexibility is one of the biggest advantages that can be hindered by the mindset in larger companies."

Looking inward helps to a point, but entrepreneurs and businesspeople must also be able to look outside their own company. In doing so, it is possible to gain a useful reflection of a marketplace, the state of an industry and even where to go next.

"Keeping an eye on the competition is a check on yourself," Paulson says. "Always ask yourself: 'Are we getting complacent? Is someone out there thinking of something better?' No, not on my watch. Asking those questions keeps you moving, keeps you smart. If someone is out there, then you ask: 'What are they doing?' and 'Can I do it better?'"

Differences can be powerful

Another key to competing effectively is differentiation. Slashing prices and fighting battles to sell almost identical products causes nearly everyone involved to lose. Savvy businesspeople do their best to avoid that sort of me-too product battle.

Jacqueline Shan, co-creator of natural cold remedy Cold-FX and founder of PBG BioPharma, sees those sort of competitive plays or zero-sum games in terms of "blue ocean, red ocean" scenarios, where there is feeding-frenzied competition.

"Personally, I don't like competition," Shan says. "I don't want to be in the red ocean, with sharks fighting over a limited amount of food. I look for the blue ocean. I always want to create a unique product, not in an area where there is a direct head-to-head competitor."

With Cold-FX, Shan's company soon found itself with the best-selling cold and flu product in Canada, introducing a new category of natural health products to the marketplace.

Her background includes two PhDs in pharmacology and physiology, and she specializes in developing processes and products that improved the clinical efficacy of natural remedies. That emphasis on scientifically validated natural products was essential for differentiating Cold-FX in a drugstore aisle crowded with cold and flu remedies that all looked and acted alike.

"Competition is always there," Shan says, "but we don't want that cutthroat approach." She believes that seeking a patch of blue ocean is a smart approach for any budding entrepreneur.

"There were many cold and flu products out there. My philosophy says that even though we're in the same sector, if we're all doing me-too products, the small companies simply are not going to exist," says Shan. "It's tough being a small company competing with big guys, in our case, products like Advil and Tylenol. We outsold them not by going after the me-too products, but with a different mechanism, different action."

She found her patch of blue ocean. Make that patches of blue oceans, plural.

Ryan Holmes, founder of social media management platform Hootsuite used a similar approach to take stock of an entirely different industry: tech and social media. He launched Hootsuite during the early days of specialized social media clients.

"There were other companies in the market, but they were nearly all focused on being power apps or targeting power users, less on being a tool for business," Holmes recalls. "Business users were our focus and our vision from day one. It set us apart. We were still competing against other folks going after the business market, but not nearly as many.

"And we were small back then, completely bootstrapped [with little to no external funding by venture capitalists or others wanting to influence the company direction], with the ability to think in terms of just building a minimum-viable product (MVP) and getting it out there. 'Better out than perfect' was how we could operate, where you learn as a product gets out the door, when its actually in the hands of users and you can get feedback and give users what they want. That flexibility is a superpower you have as a startup, and it's a luxury that mature companies may not have."

Holmes and his team differentiated Hootsuite by which customers they focused on, by simplifying their product development approach and adapting to meet client needs.

Look outward to possibilities

When it comes down to it, much of the real competition entrepreneurs wage can be with themselves and their own perspective. As David Armstrong of IatroQuest says, "Entrepreneurs hold things close, and they don't always know how to play in the sandbox."

Armstrong got his start in business through a genuine competitive opportunity. In the late 1990s, the Canadian Armed Forces put out a call seeking new defence technologies relating to biological warfare. Through a highly competitive procurement process, Armstrong's technology ranked first. He was awarded a million dollars to bootstrap his company and launch into the market.

Armstrong has also been involved on boards and with angel investing groups in Canada's national capital region. He has seen many companies come and go in the competitive biotechnology field.

"In a pure research environment, it's publish or perish," Armstrong says. "But in entrepreneurism you need to learn to play in that sandbox, find people to share with and to help achieve your goals. That can mean bringing in the right team in your own company to share responsibilities, that way you can ultimately accomplish more, and you get to breathe.

"In the venture world, you don't even have a business if there's no competition, if no one else is thinking about what you're thinking about. And in the entrepreneurial world, you do want to keep ahead of the competition, but also make smart decisions on strategic alliances and the sharing of puzzle pieces," Armstrong says.

Armstrong adds that it is important for everyone to quickly figure out if someone is a friend or foe. Competitive decisions are also about recognizing what a company's technology could benefit from and realizing if there are corporate obstacles that could slow down the company or its technology adoption. Misreading or not watching out for such signs could lead to a competitor messing up the sandbox rather than playing cooperatively in it.

And as to ruthless attitudes, Armstrong thinks that gets overblown.

"There are very few smart businesspeople out there who are going to waste energy trying to cut you down," Armstrong says. "There's not a lot of dog-eat-dog out there, in my experience. People are too busy building their business and looking for mutually beneficial partnerships. There may have been a time when it was like that [ruthless] but not now. It's just not productive."

Scott Phillips from StarFish Medical also sees more bridges being built than burnt. "Real competition is rare," he says. "The thing about being an entrepreneur is that you are creating new opportunities that didn't exist before, through ideas and through communication. In my experience, the most exciting opportunities arise out of conversations about what's possible, about what can be created, not battling over the same territory."

Andrew Chau and Chris Simair, co-founders of restaurant delivery service app SkipTheDishes, agree with Phillips.

"For us when we started Skip, maybe we did have a bit of a competitive chip on our shoulder, being a bunch of prairie boys from small-town Saskatchewan, so we wanted to show that you could make a big impact from a small market," Simair says. "But competition isn't always about having an antagonistic approach. When you see a problem that needs fixing, the competition is between yourself and the problem at hand. We believed that we could bring this 'big-city' idea of Skip, and food delivery, back to a small market. And we believed that there was also a massive opportunity to democratize innovation away from Silicon Valley and away from the big cities."

"And it isn't about trying to beat the competition as it is today," Chau adds. "It's carving out our own share, building our own advantage and using the speed, tech and people we have."

Entrepreneurs can also find themselves competing with prevailing attitudes of worthiness. Sometimes that can even be affected by national character, such as Canadian thought patterns or beliefs.

"In Canada, sometimes we're afraid to elevate, because we have this ingrained attitude that we're not as good, that we're the second cousin," Arlene Dickinson says. "The American dream is big, and the Canadian dream is 'steady on, persevere, be less arrogant, less aggressive.' Recognition gets married to these ideas that get elevated when you succeed, sometimes characterized as arrogant, aggressive, ugly."

Dickinson sees the positives influencing entrepreneurs in Canada and recognizes that they can strive for more stereotypical identities.

"There's a practicality and pragmatism that is very Canadian. There's a social root to that. We care about one another. We think about the 'we,' not the 'I.' We're driven by community, by ensuring that everyone is taken care of. It's the heart of our social consciousness. Whereas America is all about *your* dream. But there is a middle ground there. You don't have to give up what you want to build for something outside yourself."

In thinking about how to face competition, whether from without or from within, entrepreneurs are encouraged to: understand and respect the power of relationships, find what sets them or their company apart from everyone else and hold on to values and humanity.

Everyone on an entrepreneurial journey can encounter similar battles. By being careful not to categorize all competitors as people or companies to be feared, entrepreneurs can gain allies instead of obstacles.

Unnecessary obstacles can distract entrepreneurs from what they need to focus on and may even stifle innovation. Time and energy spent firing shots at competitors can backfire and harm the reputation of the entrepreneur doing the fighting. But, interpreting competition broadly can present opportunities and advance businesses.

Before pursuing opportunities or deciding what partnerships to form and which allies to welcome, entrepreneurs must learn about their market and the players within it. As successful entrepreneurs shared, it is vital to listen to clients. In doing so, entrepreneurs will better understand how to become stronger by differentiating themselves, their innovations and their company. This can also lead to choosing what technology to protect, which direction is the most appropriate and how to authentically run a business in alignment with desired values.

These same directives apply to NRC IRAP. It recognizes that partnering strengthens its already valued offerings to Canadian businesses and entrepreneurs. This includes teaming with organizations that have some complementary services that people might assume are quasi-competitive, such as economic development agencies across Canada, the Business Development Bank of Canada, Global Affairs Canada and international partners.

Tearing down the competition is rarely the way to gain ground. NRC IRAP wants entrepreneurs to aim for the higher ground that will give them an edge in both domestic and global markets. So, when an innovator has global aspirations, NRC IRAP can help them pursue co-innovation opportunities with foreign partners and plan for international market entry.

Extending global reach

Through major projects, NRC IRAP can support companies and propel them to international sales. Burnaby's Ocean Floor Geophysics (OFG) was originally a consulting company. But with NRC IRAP support, the company transformed its internal system into a sensor product to collect detailed datasets in more environmentally sensitive ways from the depths of the sea. When deployed on remote-operated and autonomous vehicles, the sensors explore sea floors to detect mineral deposits, inspect subsea pipelines and identify location of underwater mines.

"As a small company with limited resources, IRAP support was the kick-start we needed. It reduced the technical risk and permitted our small company to commit to a technology project without compromising our existing consulting services," says Matthew Kowalczyk, CEO of Ocean Floor Geophysics. "IRAP was unbelievably effective in letting us develop the technology, pursue export markets and grow our team."

NRC IRAP continues to invest in valuable partnerships with other countries to advance R&D for science and technological innovation.

Canadian businesses, researchers and academics also benefit from Canada's membership in Eureka, an international network for market-driven collaborations on industrial R&D. They gain access to 45 economies globally, specifically via the NRC, which is Canada's national office for Eureka. Leveraging Eureka and co-innovation has proven to be an outstanding way for Canadians to work with international partners on mutually beneficial projects, speed up how fast goals are met and achieve greater impact on those shared visions.

Take Arius Technology as a case in point. Arius is a Canadian company that developed systems to optically scan, 3D map and digitally restore art masterpieces in such detail that partners can print textured replicas. Arius has partnered with galleries and institutions around the world, such as the National Gallery of Canada, the Mauritshuis in the Netherlands, the Tate in Britain and the Audubon Society in the United States. On behalf of its partners, Arius has worked on art treasures painted by the Group of Seven, Van Gogh, Monet, Vermeer and many other famous artists.

"Both our ITAs lived the tech life before working for the government and know what it takes to move from concept to reality in business," says Paul Lindahl, CEO of Arius Technology. "Eureka was a perfect fit, like a hand in a glove, for where we were as a business and what we wanted to do. Our technical success and program assessments legitimized Arius Technology. That gave private investors the comfort level they needed.

"Going back to Eureka was a no-brainer. It's centred on results, efficient reporting and strong R&D funding levels that let corporate partners focus their other capital on vital business development and sales activities," Lindahl adds. "However, the added complexity that comes from dealing with protecting intellectual property and working with an overseas organization makes it critical to have somebody as outstanding as our ITAs in my corner."

The NRC Challenge programs, which include domestic partners and are open to overseas participants, are another avenue to international collaborations. Many of the Challenge programs involve areas of shared interest, such as materials for clean fuels that could be key to addressing climate change. Other areas such as artificial intelligence and cybersecurity could lead to breakthrough technologies important for creating jobs in emerging sectors and affecting many countries.

NRC IRAP also works closely with ecosystem players to support Canada's ability to better translate its knowledge and innovations into solutions for resolving social challenges in other countries, particularly ones requiring collective help. In-depth familiarity with Canada's innovation ecosystem allows NRC IRAP to advance international collaboration by focusing on similarity of challenges, complementary capabilities and available resources. That familiarity reduces duplication and ensures more successful cooperative efforts.

CHAPTER 3

HARD WORK

Nobody doubts how dedicated entrepreneurs are. They are notorious for being unafraid of hard work or the extra hours that go with it. They have been taught to think that the harder they work, the more likely they are to succeed and that their results will be greater.

The cliché of the "self-made" leader is of all-nighters and endless pots of coffee or energy drinks. Picture those entrepreneurs toiling at a glowing laptop monitor, in either a lab, a garage or a workshop. Pushing oneself to exhaustion has been a badge of honour, especially in the startup culture.

"Without sacrifice, without hustle, you will fail," is a message that entrepreneurs are told over and over again. It is true that when getting a business off the ground, the effort needed can be overwhelming at times and a bit intimidating, especially for anyone who is going solo. In those cases, ITAs hear from entrepreneurs that rather than being scared of working hard, they are worried they may not be working hard enough.

Often thoughts like "If only I had pushed harder to get to market faster" or "I should have reached out to more potential investors today" are among the nagging self-doubts echoing in the minds of aspiring entrepreneurs.

Even if worries of missing the mark are common, that does not mean that they are healthy. And there is far more to the idea of 'hard work' than just putting in enough effort to get a job done. Casting a critical eye on traditional parts of entrepreneurship can help entrepreneurs reduce worries and avoid excess hard work that becomes counterproductive and unnecessary.

Those entrepreneurs can lean on an experienced team from NRC IRAP to assist with every aspect of their innovation process. That includes having an ITA in their corner who can propose solutions for how to streamline their processes and efforts and not sacrifice their health and well-being. By having developed long-term relationships with entrepreneurs and innovators, the ITAs are equipped to assist in countless ways.

Making an entrepreneurial vision a reality will still take hard work. New products, services and companies are rarely created without struggle and sweat. But there are ways entrepreneurs can make sure they direct their Herculean efforts in the right ways, productive ways that follow a set plan without leading to burnout.

It is too simple to just say, "Work smart, not hard," because entrepreneurial types will go above and beyond what is called for to realize their vision. There is no question about that. However, investing the time to do advance homework can help such types to be strategic about how they move forward. Before choosing a strategy or a path, it is wise to plan for it. Entrepreneurs and innovators can listen to podcasts, read books and seek out advice from people who have taken similar paths or who have experience to share.

By planning ahead instead of scrambling and reacting, individuals are better prepared and may even enjoy the process, which can make the reward at the end that much sweeter.

Hard work is more than just a means by which to achieve goals, whatever they may be. It is also a way to show everyone from investors and partners to future hires and customers that this business or entrepreneur is a force to be reckoned with.

Leave a trail of good impressions

Darcy Amendt from Arctic Spas flew halfway around the world to fix a broken hot tub. That happened more than once, according to his ITA who shared the following story.

Arctic Spas was in the process of expanding into huge markets. The company had recently set up a European sales and distribution office in the United Kingdom (UK). One of that office's first sales was to someone in Northern Europe. This customer was planning to show off the hot tub at his upcoming birthday party.

One small problem: the hot tub was not working. Staff at the new Artic Spas distribution centre in the UK had yet to learn all they needed to know about the product, so they had no idea how to fix it. Since it was the first hot tub they had sold and shipped from the UK, no one on that side of the Atlantic Ocean could do anything to help the customer. So, Amendt hopped on a plane, flew to the customer's country and fixed the hot tub himself.

In the ITA's telling, the customer was astonished. Amendt found the problem, fixed it and even stayed for the party. The story continues because the party host was a contractor himself, as were most of his guests. Everyone there was impressed by the quality of the hot tub and Amendt's client service. So much so that nearly everyone in attendance went on to buy a hot tub from Arctic Spas.

But the best part of this story goes beyond the outcomes. When asked directly about that situation, Amendt was unsure about specifics. Not that it had not happened, but because he had done similar things, multiple times: jetting off around the world to personally solve a problem, because leaving the issue unaddressed was simply not an option, and there was no one else to do it.

Amendt believes that first European sale was on a mountainside in Norway. In the ITA's story, it was Sweden. There have been jaunts to Australia too. Once, a rattle in a tub that Amendt went to check on in Texas turned out to be a literal one, attached to a rattlesnake.

"One of the reasons we continued to grow is because of that mentality," Amendt says. "You work that hard and you build a reputation. Someone like that Norwegian customer, or our UK distributor, they see what we do and they tell their customers, or their friends. They say, 'These guys are like the Marines, leave no one behind.' It's conveyed in our marketing, on the sales floor, by our customers to their friends: 'Don't worry, these guys will take care of you.'"

In Amendt's view, the leader of a company must embody those ideals of service, especially if they expect their staff to follow suit.

"You shouldn't expect any one of your employees to do something that you wouldn't do," Amendt says. "If you expect your employees to take care of people, you better take care of people."

The right kind of hard work will do wonders. It not only builds a positive reputation for that individual within an industry, but also sets an example that their company as a whole can be proud to represent.

See the situation clearly

Not everyone can fly around the world to show they are serious about hard work. Amendt's story shows something of a best-case scenario in being willing to go the extra thousands of miles. But it is important for each person to know their own limits. If someone is lucky enough to work with partners they trust, there are built-in sets of eyes to help monitor the workload and ensure that everyone is working within their abilities.

When Club Penguin partners Dave Krysko, Lane Merrifield and Lance Priebe were starting out, Krysko took it upon himself to play the support role while the other two drove the development. Building a virtual world for children felt to Krysko like a young person's game, so he knew he was better suited to a role backing up his partners in whatever ways they needed.

Krysko admits to being a "big believer" of a leadership philosophy that upends traditional leadership models. In his version, leaders share power and they put the needs of others like employees and partners first. He assessed his strengths and the ways he could best contribute for everyone's gain.

"I was older than the other two guys, and I was in a position to put in most of the money when we started Club Penguin. I didn't know the product like Lance did, or have the energy that Lane had, but I told those guys, 'We're going to be equal one-thirds partners in this, but I'm not cut out to be doing the heavy lifting, so I'm going to be the support side of things. I'm going to back the two of you up and help you do whatever it is you need to do.' I helped out with the big decisions, and things moved very quickly in those early days, but the thing about [my style of] leadership is that you're focused on supporting people, on helping them move forward. It's not about you. You need to get your head around that quickly."

A productive attitude toward hard work is paramount. For entrepreneurs that attitude must be within themselves and shared by those who surround them: clients, employees, family, even investors. Shared accountability will help ensure that the entrepreneur's work does not consume everything in its path.

Arlene Dickinson from Venturepark and *Dragons' Den* believes that even the most passionate and fanatically driven entrepreneurs need perspective and a guiding hand.

"Everyone looking to make it in business needs to be self-aware. I don't think you need to work 120 hours a week to be taken seriously, but on the other hand, I don't know how you can build your vision if you're not consumed by it," Dickinson says. "You'd never say to an athlete, 'Be an athlete from nine to five.' You'd never tell an artist, 'Don't pick up a paintbrush at nighttime.' That's who they are. If you're going to be entrepreneurial, you need to live it, breathe it. We shouldn't punish that sort of dedication, but we also can't take advantage of it. As someone who's been on both sides of this coin, an entrepreneur and an investor, my view now is that as an investor, I need to do whatever I can to support those I invest in."

Dickinson adds, "As an investor, I might invest in someone and start to understand them as a person. I'll see the characteristics that impact who they are. And sometimes, if you see them start to make choices that aren't good (for instance, overworking themselves or taking on more than they're capable of) or they don't listen when they get advice, that can be a sign of arrogance, and not being self-aware and doing what's best."

A lack of this type of self-awareness can be a stumbling block of aspiring entrepreneurs, and established leaders can get tripped up by that gap too. Paul Lee from Vanedge Capital and EA is someone else who has experienced the gauntlet of business from multiple perspectives, from startup entrepreneur to an executive at a major company to an investor. He believes founders or entrepreneurs who lack self-awareness of how they work can even damage the value of the business.

Lee says that entrepreneurs must keep an eye on the long view, and bear in mind that those who invest in their company often consider entrepreneurs as much an asset as the technology or product. As an investor, having a company's leader burn themselves out is not something Lee wants to see.

"Some entrepreneurs have a real bravado around how hard they work," Lee says. "As an investor, if we invest in you, we know you're willing to work hard. But you need to manage the risk of burning out because if you go down, we're screwed.

"We deal with risk of burnout all the time. The attitude of overwork being just "what an entrepreneur does" is harmful. It's especially common in the early stages of a company's growth. At that point, by definition, companies are doing more, they're evolving and growing, but that doesn't mean that one person needs to take on all of those new tasks. It becomes a matter of prioritization and time management," Lee says.

Urgent and important are not the same

Paul Lee spends lots of time coaching company founders in his role at Vanedge. He helps them to understand what is often hard to grasp for highly ambitious people.

"I tell them less is not less," Lee says. "What I try to do is remind entrepreneurs that no matter what you say, or how badly you wish otherwise, there really are only 24 hours in a day. The risk of burning yourself out is very real. In the short term, maybe you'll save time or money by pushing yourself that hard, but it could risk long-term damage.

"Leaders need to learn to prioritize, and most importantly, to learn the difference between what's important and what's urgent. These two types of things are always competing. There are tasks that are 'urgent,' that need to be done due to a deadline or a critical next step. There's also a second set of tasks that are 'important,' things that may not have a deadline, but that are still valuable and necessary. Lots of things fall onto this second list, like improving the budgeting or forecasting processes, hiring and staffing, scheduling, even 'quality.' While quality isn't a tangible item that you can put a checkmark in a box and say it's 'done,' it is something that can really suffer when it is not an urgent item with a timeline. People deal with urgent matters because they need to get done, but at the risk of pushing off the more important matters that are critical for success."

The major solutions that Lee puts forward to address these issues are not rocket science. They boil down to time management and delegation.

"Whenever one person feels that they're responsible for an entire project, or an entire company, that can be a problem," Lee explains. "When you're starting a company, you need to learn about time management. As a company grows, there's a transition from 'small company' to 'slightly bigger company,' especially from the point of view of a founder. You become more knowledgeable about everything related to your company. Not only your core product or business, but also the extras that come with growing, such as budgeting, staffing, management. A leader cannot singlehandedly do all of these effectively so they must learn to delegate, which can be a struggle to learn."

Delegation can be tough. The spirit that drives entrepreneurs to form a company also compels them to try to do everything and not hand off any work to others. Too often, entrepreneurs believe that only they understand their businesses well enough. Or, they feel slighted when someone else proves to be "better" at critical work. Both are rooted in ego, and both can be solved through discipline, self-awareness and effective guidance.

"Lots of entrepreneurs need coaching through issues like this," Lee says. "We tell them that we're not saying they can't do A and also do B and C, but that you need to consider risk and value. If you don't give up your time on one area of less value, you're going to spend less time in this other, more valuable area."

Delegation is a vital step in prioritizing between what is urgent and important. Prioritization and delegation also work hand in hand with time management. Entrepreneurs who can apply and combine those processes will move much closer to success.

Hard work looks different for every venture

The stereotype of 18-hour days and sleepless nights only reflects what hard work looks like for some entrepreneurs and innovators in certain fields.

For others, hard work is about the stolen moments spent over months or years that combine to keep an idea alive. It is finding the tiniest fragments of time to move forward on a project that will eventually form the foundation of a new business.

Dave Leger of Loop Energy spent 11 years gathering and honing those fragments of time and attention. Eventually, they led to what became the core innovation behind a revolutionary fuel cell company.

"It was 1998 and I came into a time of a little bit of financial freedom, enough to be able to put myself through school and to torture myself by poring through the U.S. patent database on a dial-up modem," Leger recalls. "Diving into the database, I could see that my idea was different from everyone else's in fuel cells. I read everything I could about bipolar plates. That went on, in tiny bits, for years. I've always been an entrepreneur in one way or another, so when the other business I was running closed up in 2009, I could go full bore at Loop. I just kept going, following up on this idea I had, waiting to be told that it doesn't work. But that never happened."

All too often, this is the kind of protracted work that gets ignored when telling a company's success story. Traditional media and newer media platforms share stories about the sprints or overnight successes, not the marathoners. Ryan Holmes, founder and former CEO of social media management platform Hootsuite, experienced an entrepreneurial marathon firsthand.

"It took 20 years from starting my first business to when Hootsuite took off, and people called it an overnight success," Holmes says. "The value in hard work is how you learn focus and commitment over the countless hours. But it was an incredible journey, building something with thousands of employees and millions of customers. It was a life-changing opportunity."

While working on building a business from the ground up, time can become slippery, according to Michelle Laflamme, President and CEO of

EMOVI. Her medical company, specializing in technology to assist with knee injuries, saw its early work stretch well beyond the initial schedule. Even considering that the medical devices industry is known for extended timelines to move from ideas through to when products get to market, Laflamme faced a lengthy journey.

"Our core product, the KneeKG, was first envisioned in 1994 by surgeons who wanted to know more about knee movement. They thought it would take two years," Laflamme says, laughing. "In 2007, we made a business plan. I thought we might be able to launch and commercialize in 2013, but in reality it took 10 years to get to that point, not six. It took a lot of time to gather data, acquire financing and to understand the market.

"There's not much to do to reduce these kinds of delays except to roll up your sleeves and work. You realize all the time that something is going to take more time, cost more money or you need to consider new elements. But when you have a good plan, and you have conviction, you build trust in yourself and your project. You keep going. It's more difficult than you thought, but you persevere. Determination is at the heart of the journey of all entrepreneurs."

When progress happens slowly, it may feel like nothing is happening. Often this means keeping an entrepreneurial dream compartmentalized and any expectations in check. Life goes on around the dream. Entrepreneurs forge ahead.

"You just need to keep the ember burning," says Paul Westdal, President of TheoryMesh Corp. "My partner Don Murray and I did that for 10 years with BMW Canola, until we had a partner with resources. You just take baby steps with the resources you have, infinitely small steps as you move ahead, and it takes time and effort.

"And you need the passion for it when you're living on a lonely planet where you're the only two with the drive to keep things going. Don and I were both working day jobs and both had families," Westdal says. "Adversity is too strong a word; we were getting positive results. For years, if we saw green lights in our results, we would go. If we saw red lights, we would stop. You have to have the passion that goes beyond looking for money or reward. A simple love for money won't carry you through."

Know your strengths

Scott Phillips at StarFish Medical sees two major types of leaders in his work with growing companies. StarFish is not in product development itself, but rather provides services as an expert consultant and contractor for other companies looking to create new medical devices, so Phillips has spent a lot of time around newer and growing companies.

"There are innovators and there are implementors," Phillips says. "That is, people who start projects and people who finish them.

"Innovators start things. They have new ideas. They're great at doing the work to determine what sort of problem they're solving, and how their approach is different from what others have done. They ask questions. They explore the nature of the problem. And, they hate constraints."

Phillips adds, "Let's say you're in the speaker business, for example. The innovator knows, intuitively, why they're in the speaker business. They see how their speaker technology is different and what issue with current audio equipment their product will address. Those are their strengths.

"Now implementors, they're the finishers. They shrink problems down and ask questions until they crush the problem. They seek detail. To them, constraints are guidance, they're necessary," Phillips says. "Continuing the example of the speaker business, an implementor will ask about voltage, height, weight, volume levels, cost. They'll ask how many you want to make and get clarity on exactly what it needs to do and look like."

Following that advice from Phillips, individuals need to know which identity they fit into best. People who see themselves as innovators will probably need help to shape the details of their project into a workable form. By contrast, people who consider themselves to be implementors are probably a total whiz at putting together a production plan for a product. But, those implementors likely struggle to define the value proposition or describe an ideal customer.

Whether an innovator or an implementor, knowing one's own strengths is only part of the puzzle. It is also essential to find someone who complements one's natural or innate skill set.

"To be successful you do need both sides," Phillips says. "Never let the implementor start, never let the innovators finish. These types can also clash if you're not careful. Implementors can think innovators are unreliable; innovators think implementors are stuffy. But if you find the right balance, you can get great things done."

Indistinguishable from magic

Something that sets innovators and entrepreneurs apart is their unwavering drive to work hard and get it done. Some other people may be satisfied with doing the bare minimum, if they can get away with it. Which means that working hard is practically a superpower for individuals who are willing to buckle down and tackle what many people are unwilling to do. While much of this chapter has focused on how to moderate or streamline work, there are times when hard work is the only answer.

A story about a magician's card trick illustrates this perfectly. A volunteer is asked to do two simple things: pick a card and then choose some tea. Picking a card from a full deck is one of the classic magician setups, nothing special there. In this case, the card choice only seems random, but it is not. The magician performs a "force" that manoeuvres the volunteer to "randomly" choose a specific card. It is in the rest of the trick where the flourish, the craft and the hard work is found.

Once the volunteer chooses the card, the magician asks the volunteer to choose from a huge array of brand new, sealed boxes of tea. The volunteer can pick any tea they want, unseal the box and then choose a single wrapped tea bag from within the box. As the final reveal for the trick, they open the package and find their card inside.

How did the magician do it? Was it sleight of hand or real magic? No. The answer is hard work. Before performing this trick, the magician spent hours unsealing every box and the individual bags of tea, placing a copy of the predetermined card inside each one, and then painstakingly sealing everything back up again. Compared to the amount of behind-the-scenes work, the work with the volunteer is a mere sliver of the effort that went into creating an enchanting moment.

As entrepreneurs or innovators look to turn their dreams into reality, they want their hard work to have lasting meaning. More than the moment it takes to perform a trick, but the lesson is the same. Making magic happen means putting in the effort.

Confronting the downside of hard work

In many sectors, entrepreneurial life and startup culture still have some toxic aspects that resurface. Despite progress being made to recognize unhelpful, stereotypical behaviour that leads to overwork and burnout, many ambitious people continue to push themselves up to and over that edge.

There is no firm number to show how much work the "average" founder puts in. But the figure can easily be more than 60 hours per week, based on anecdotes, industry research, online discussions and ITAs' observations from working with founders. Some founders claim their weekly workload tops over 100 hours. Meanwhile research claims that founders will spend 75 percent of their entire week working for their business. That leaves only 25 percent of their time for non-work essentials of life like sleeping, eating, running errands and spending time with family or friends.

Many people who watch a loved one go through this imbalance tell themselves that they will not do the same and decide to avoid entrepreneurial pursuits. But what if a voice in their head starts to pull them in that direction anyway? Those founders tend to make a conscious choice to put strict boundaries on their work efforts, emphasizing family and personal well-being.

"When I was growing up, my dad was an entrepreneur," says Amanda Rhyno, founder of Nourished Magnesium. "He worked so hard, a lot of the time we just didn't see him. He couldn't leave his work outside the house, and that had an effect on me. I was never interested in having my own business when I was growing up. Of course, he started his business 40 years ago, when things were very different. Where I can start something on social media and reach an audience, he was out knocking on doors.

"I made a decision to take the path less travelled. My biggest desire is to be a present mom and raise my daughter in a really conscious way, not to have her shipped off to different daycares, homes and hands all the time," Rhyno says. "I look at other founders that I know in my community that started at the same time as me. A lot of those businesses have grown more than mine, some by leaps and bounds. But a lot of those founders are working 12- or 15-hour days, every day. They might not have seen their kids in two weeks. That's not what I wanted.

"Sometimes you're looked at differently as an entrepreneur when you make choices like that. You even ask yourself: 'Why am I not able to offer more? Should I attend more events, design more products?' But this is the path I've chosen. It used to concern me more a year or two ago than it does now. The judgment usually comes from people who don't understand what goes into this life," Rhyno adds. "You're running a business, raising a child, making lunches, creating products, doing all of that on your own. You can't always take every phone call or attend every event. People draw their own conclusions, and you can't run around telling your full life story to everyone. I trust that I've chosen the path that works best for me."

Entrepreneurs must recognize that hard work looks different for everyone. It not only takes effort to launch a business, but also to meet the demands of everyday life. Even without competing business demands, it is hard work to raise children, care for aging parents or pay the mortgage. Rhyno mentioned how challenging it is to look past or overcome judgment. That weighs on founders who measure themselves against their peers or against personal high expectations. As Rhyno has done, it is vital that every entrepreneur forges a path that suits them.

Understanding the cost of achieving your dreams

When Disney bought Club Penguin, Lane Merrifield was thrust into a position of leadership at one of the biggest entertainment companies in the world. The demands on his time and attention skyrocketed. Looking back, he knows there were times when either his business life or his family were forced to take a backseat.

At the heights of Club Penguin's success, deciding where to focus was the choice between "my own kids or millions of other kids," Merrifield remembers. "I like to think I did well, but I also stumbled around as much as anyone else. You need to weigh and consider those factors in real time. Sometimes you try to think of ways where you can make a personal sacrifice so neither side loses, like going to a concert with your kids and then going back to the office after they go to bed and pulling an all-nighter. You try to manoeuvre as much as you can. At the end of the day, there are times where I could put my kids first, and times where sadly I couldn't. I've had to apologize to them and ask for forgiveness. I just couldn't be everywhere at once."

"There are sacrifices to make along the way. I made the decision to try and never be away for more than a few days at a time. So, there were times where that meant being on a plane for 18 hours, spending more time in the air than on the ground, whether it was Australia or London, all over the world."

Merrifield adds, "Did I do perfectly? No. But was it the best I felt I could do? Absolutely. I know I can look my kids in the eye and say that I made the best decisions I could. Sometimes they won, sometimes they lost, but in my heart, I believe that I did what I had to do. That's all anyone can really strive for."

Hard work should not be feared as part of the entrepreneurial journey to achieve a vision. What matters is that everyone must be able to live with the choices they make, for all entrepreneurs' sake and for the people around them.

But there will always be trade-offs. As Paul Lee said, there are only 24 hours in a day. And while a person can still only be in one place at a time, Wi-Fi availability and video technologies are increasingly helping entrepreneurs bridge gaps between their professional and personal worlds.

Pitching to an investor remotely from a home office can let an entrepreneur be available to take a loved one to a medical appointment that same afternoon. A video chat and social channels can also let an entrepreneur check in with a spouse, a parent, a child or a friend before physically attending a business meeting halfway around the world.

Dedicated and ambitious entrepreneurs, at every stage of their careers, at businesses of every size, must learn to prioritize and pick what is most important over what is urgent, and what aligns best with their business plan and personal needs. Throughout that process, they can lean on the ITAs who have fostered long-term relationships with them and who are committed to assisting in finding ways to optimize the entrepreneurial journey.

Entrepreneurs must also work hard to become better at delegating tasks and streamlining efforts as ways to balance a healthier workload for themselves and their team. In both a sprint and a marathon, such choices can be the difference between a busy but rewarding and healthy work life versus the all-too-real risk of burnout.

No matter what choices they make, how those entrepreneurs and innovators reconcile their choices will define who they are. Ultimately, entrepreneurism should involve hard work for focused reasons, not being overworked at all costs.

CHAPTER 4

TIME WELL SPENT

When working on an innovation or building a business, some entrepreneurs and innovators can get tunnel vision, where nothing outside of their project matters. They may neglect their personal life, not get fresh air or sleep, forget to eat well or exercise, and put everything else on the backburner. When that happens, they consider any time not spent coding or building or networking as time wasted.

Just as working hard is not always good, the flipside is that wasting time is not necessarily bad. Entrepreneurs must strike a balance between the two, which can be especially hard for people who are driven and who feel responsible for making a success of their venture. Sometimes, taking time off or switching activities is the best way for them to gain perspective and recharge, before returning to work to solve challenges or grow a venture.

An activity that one person considers a waste of time could be an activity that someone else, maybe an investor or a potential business partner, views as essential. As tempting as it is to focus on tasks that they enjoy doing or feel are their priorities, innovators cannot focus all their time on solving challenges and perfecting their creations.

ITAs make every effort to have a complete or holistic understanding of clients' business and their business strategies. This view allows ITAs to provide expertise that helps clients focus on areas that most need their attention.

Taking care of business can mean entrepreneurs and innovators must recruit new talent to grow the team's skill sets, plan for product management, market to get word out about the company and its innovations and pursue activities like securing investments or even taking care of oneself.

Innovators face a stumbling block when they lack the skills or the drive to expand their abilities and focus on something else. Those who are interested solely in one technology or one product would be best to stick to an R&D career path rather than an entrepreneurial path. It takes more time and diverse skills to move a brainwave through the many steps to realize and adapt that idea for an industry sector or store shelves.

"Entrepreneurship is the best form of an MBA-like school. You learn everything: finance, thinking long-term, getting to know people, learning from them," says Martin Basiri, Chief Executive Officer of ApplyBoard. "I selfishly say my self-growth is the most exciting part [of entrepreneurship]. That I can learn the things that I would never have even imagined exist. I can think macro now and many times be very accurate, and bet on it and win. It's a dream life."

Basiri was born in Iran and wanted to pursue a Master's degree in Canada. He was unsure how to start the application process for studying at Canadian universities and needed help figuring out what information or people he could trust. Based on the challenges he faced and what he learned, he co-founded ApplyBoard. ApplyBoard connects universities, post-secondary students and recruitment partners through its technology platform by making it easier to find, apply for and get accepted into study abroad programs. Although he did earn his Master's degree in Mechatronics Engineering from the University of Waterloo, Martin has found entrepreneurship to be a breeding ground for learning about all aspects of business.

To succeed, innovators and entrepreneurs must be familiar and comfortable with the 360-degree view required to run a business. Dom Kwong, co-founder and Chief Operating Officer of Damon Motors, agrees. While he needs to understand cleantech manufacturing and smart technologies like artificial intelligence, robotics and sensors to advance his company's fully electric motorcycles, he also takes time to invest in professional growth.

"I'm still learning to be an entrepreneur. I'm not there yet. I treat every day as a great day that I have an opportunity to speak with those who are true entrepreneurs," says Kwong. "I think that something any successful entrepreneur has to have is the ability to listen really well and seek advice. It can be a lonely place, but you have to realize you're not alone. There are many other people going through the same plight as you."

Broader horizons to sharpen business acumen

"Having a few brilliant scientists around is always good," says Haig Farris from Fractal Capital, D-Wave, and other startups and venture funds. "That's not an entrepreneur though." Or not necessarily.

Farris should know. In all, he spent more than five decades in venture funding, in advisory positions at major startups and in teaching university courses that show technical innovators how to successfully run a business.

When Farris looks to understand an entrepreneur's abilities, he looks at more than their expertise in their field. He looks deeper to see what makes that person tick. He delves into areas of interest that obsessive, goal-oriented entrepreneurs might consider wastes of time.

"I want to know what a person sees as their place in the world and learn about their personal motivations, not just about what their brilliant idea is," Farris says. "I look for curiosity. I ask them what they've read lately. Once, I interviewed a student working at a physics lab in Vancouver and discovered that outside of work, he lived in a condo that had a huge problem with the condo board. This kid saw what was happening, took it upon himself to get elected to the condo board and solved the problem. I see that and I say to myself, 'Here's a kid who could probably run a company.' And he did. He went on to become a successful CEO."

Farris adds, "Contrast that with the scientist type. All big companies have got those kinds of brilliant minds around. Say you're Intel and you've got a massive problem with a new chip design. You go to your scientist, the one you keep around because of what they can do in times like this."

So, Farris seeks out people with varied skill sets. "I try to find competitive spirits. Athletes like to win; they understand what it takes to win. Music is another thing I ask about. Many talented people also play an instrument. I like to see people whose brains are firing in all directions."

Being driven and focused on success can add value, but there is also an upside to showing breadth of ability and of character. Often the most surprising and successful people bring skills to the table that no one else thought to use. Or they take steps outside of traditional bounds and they find new possibilities no one knew existed.

From potatoes to prebiotics in two easy steps

Derek and Earl McLaren are brothers who started out as traditional potato farmers. In their own telling, they were just country boys from Manitoba, but with restless entrepreneurial spirits. They had potato farmed for 23 years and their company grew to be one of the largest potato producers in Canada. In that time, they also dabbled in other ventures, such as equipment manufacturing. For many people, this sort of growth and ongoing success might have been enough. But not for the McLaren brothers.

"Every potato farmer has to be a bit of an entrepreneur on their own," Earl McLaren says. "I feel like it comes naturally in a farmer's background. You've got a lot of soil, a lot of equipment and often your needs are so unique that you can't buy off the store shelf. We always had our eyes on how we could improve. Then in 2002, we had the opportunity to, I guess as you often do in the country, buy the neighbour's property."

Their purchase was not as simple as buying another plot of farmland to grow more potatoes. Their new-to-them property was actually the operating facility of Manitoba Starch Products. There, that company processed a coproduct from the potato industry into isolated starch compounds that could then be re-sold. The McLaren brothers dove in when other people might have stuck to what they were already good at. The McLarens saw that the diversion into a completely new area of business was neither a distraction nor a waste of time.

It was soon obvious that this diversion into starch would become the brothers' primary focus. They also found that their interest in the field moved beyond the industrial applications for which their newly acquired facility was built. They saw the increasing potential in the animal and human food applications for starch products. They started with animals. One of their brands, MSP[RS], provides gut health feed supplements to pig farmers that claim to improve the health of their stock and reduce antibiotic usage. The company is also creating products for humans that will look to improve digestive health and address kidney disease.

Such a substantial change involves risk. Like other entrepreneurs and innovators before them, the McLarens had NRC IRAP to offset some of the risks. Without a strategy, support and the right know-how, it could have been a costly waste of time for the brothers to move from growing potatoes to processing industrial starch by-products and eventually to developing prebiotics and dietary fibre supplements. But, the McLaren brothers were not alone. They had NRC IRAP by their side.

The McLaren brothers' ITA guided them from early projects through to NRC IRAP–supported clinical trials at St. Boniface Hospital. They also consider themselves fortunate that their ITA knew what questions they needed to pose and get answered. Not just for projects either, knowing what to ask came in handy during NRC IRAP–supported trips to visit facilities overseas to figure out what equipment and processes were needed to be and stay competitive.

With partners or peers who know the new industry and self-awareness about their own strengths, smart entrepreneurs can sniff out new opportunities. The McLaren brothers are the kind of businesspeople who recognize that "sometimes opportunity knocks very quietly, you need to know how to listen" and respond.

The McLarens pivoted from farming. The word pivot became more commonplace during the COVID-19 pandemic, but even beforehand it was used in the tech industry. When a startup begins to wobble or sees a potential dead end ahead, founders or startup executives will often choose to pivot. Done badly, a pivot can be an ill-informed attempt to divert from an original path onto a whole new one, in which the startup's team has far less expertise. Done well, a pivot can propel a company's expertise, technology or products into a new area, with a fresh new approach. It can break through in a crowded or stalled marketplace to reach a wider audience with an innovative solution.

Consider again the competing ways to spend time. Through poor planning, entrepreneurs might spend much time and many resources on a path that does not bear fruit. Or they might spend time finding a new direction that leads to better opportunities. At the outset, pessimists might criticize that the extra time is a waste of time.

For instance, when Apple announced the iPod in 2001, they faced many industry doubters. The tech giant had already begun to enjoy an upswing from economic downturns in previous decades, but even some of the company's supporters joined skeptics by questioning if Apple had wasted both time and money developing the iPod. Back then, most people viewed the device as an expensive MP3 player. Time and billions in revenue proved Apple correct. Maybe with less vision, planning and execution, the iPod could have been a waste of time. Instead, the iPod fundamentally changed how consumers use technology.

Sometimes a pivot is less about a company finding its new direction and more of a way for a founder or innovator to discover a whole new career direction.

That was the case for Alan Winter, when he had invested two decades in a telecommunications career, including developing an advanced crash positioning system, discussed in Chapter 1 of this book. Winter was instrumental in founding, leading and spinning out a number of major telecom companies. In the late 1990s, the budding Human Genome Project (HGP) attracted Winter's interest. This major multinational scientific effort was dedicated to mapping every gene in human DNA. Winter took time away from telecom to travel to the U.S. and learn more about the HGP. He met with people involved in the project and discussed their work. He quickly found significant overlap between his engineering background and gene mapping.

"I spoke with some of the biologists running the project. And to actually decode the genome was very difficult," Winter recalls. "I looked at the work from my perspective and realized that there were techniques which I'd used in telecommunications engineering, including error correction, that were not being used at that time in the HGP."

The relationship grew beyond just personal curiosity. Winter eventually transitioned from the telecommunications sector to life sciences.

He became CEO of Genome BC, a not-for-profit group supporting genomic research in British Columbia and around the world.

"At Genome BC, we funded a lot of projects that used code correction, which were then able to arrive at a much more accurate finish to the sequencing," Winter says. "We also helped to build up capability at the British Columbia Cancer Agency, resulting in one of the best nodes for DNA sequencing in Canada, helping to develop a greater understanding of personalized oncology."

Winter pursued an interest and found an alignment with his existing skill set. And then, he transformed that into a new phase of his career, in the hopes of improving cancer treatments and helping science better understand human DNA. Hardly what anyone would call a waste of time.

Going where the best ideas live

Sometimes inspiration and answers crop up in the unlikeliest of places when nobody is looking for them. If a person or a company is locked into a single line of inquiry, the risk is that they miss out on potential ideas and cross-pollinated inspiration. Looking beyond one's area of expertise or industry sector can present fresh perspective. Entrepreneurs can worry that a shift in focus from their immediate goal will be a distraction or what is often called a trip down the rabbit hole. That is, any such shifts will cost time, progress or even money. But exploratory thinking is the foundation of innovation.

"A lot of companies and a lot of people don't like to spend time going down the rabbit hole," says Dave Leger from Loop Energy. "But that's where innovation lives. That's what we did at Loop. We would spend hours talking and exploring ideas that might not have felt directly connected to our primary goal. A lot of people won't do that because they think it's just wasting time. For me, that's just how my brain works. I collect variables and then talk them out and try new things. As a company, we've always punched pretty far above our weight with our accomplishments, and I believe it's because we collected people at this company who want to explore with us."

Sean MacKinnon, Chief Scientist at Loop Energy, has been working with fuel cells for more than 20 years. Loop Energy hired him to help validate the data and ideas that the company collected over its first few years. MacKinnon had worked at Ballard Power Systems and General Motors earlier in his career and then held a position at an NRC research lab in Boucherville, Quebec.

While MacKinnon was at NRC, an ITA made a cold call for Loop Energy to that Boucherville lab. The ITA knew that the lab had previously demonstrated a way to manufacture bipolar plates. MacKinnon joined the call, on behalf of a colleague, and started asking questions about Loop's flow field design and the data they had collected. His questions led to the first of two peer reviews and MacKinnon's move to join Loop on a full-time basis to help advance the technology for market acceptance.

"From the perspective of a scientist, our role is to ask the questions that could lead to explaining the unknown," MacKinnon says. "It's a scientist's nature to be inquisitive and to try to understand the unknown. As scientists we want to ask 'why' continuously until we understand everything. This can lead to endless experimentation. As I entered the world of entrepreneurs, I had to change my way of thinking from a continuous 'why' perspective to a 'what would need to be true' as we worked toward commercialization."

It was a shared way of thinking that allowed Leger, MacKinnon and the rest of Loop to explore different ideas. That shared thinking also let them productively take steps, which some people might see as rabbit-hole diversions, in pursuit of understanding precisely how and why Leger's designs worked. It was an environment that Leger encouraged during lengthy sessions that would start out with a familiar, "Hey, just out of curiosity . . ."

Those discussions enabled MacKinnon to let his methodical scientific way of thinking veer down a path that delved into "what would need to be true." Scientists are rarely trained to think in a commercial context, because science is exploratory and experimental. But for entrepreneurs, the business approach is essential.

"In a traditional scientific method, you develop a hypothesis and derive experiments to understand it," MacKinnon says. "At each point where you generate understanding, you don't typically think: 'How can I turn this understanding into a business?' As scientists, we tend to dig another layer deeper to gain more understanding. However, we kept finding enough supporting evidence that this technology should be commercialized."

"When Dave came up with this idea in 1998, that's when I was starting my career," MacKinnon says. "And if Dave had been at a major company at that time, the whole thing would have likely died on the shelf. The idea was a decade ahead of its time. The problems we were solving at that point were nothing like what Dave was doing. A big company would never have wanted to waste time going down that road."

While Leger always had confidence that he was onto something big, it took recognition from NRC IRAP that this was an idea worth "wasting time" on, and the willingness of people like MacKinnon to see the value as well and join in. Sometimes all one needs is a co-pilot on the journey and a thumbs-up from a trusted colleague or peer to signal that it's OK to spend time asking "What if . . . ?" and looking beyond existing ideas and already-identified applications.

Seeing the value in fine-tuning your story

Many believe that a great idea sells itself. Almost as many innovators find out the hard way that this is far from true.

Entrepreneurs and innovators usually prefer action over talk. That is who they are. They prefer to spend their precious time doing, not explaining. Successful innovators, however, realize that spending some of their time preparing and telling their story is not a waste of time, but rather a valuable use of it. It is an essential part of recruiting business and research allies, building partnerships and gaining supporters.

Being able to communicate the value of an idea or product, or to explain how it will benefit an audience or consumer, is essential.

It is a natural impulse of an innovative mind to get caught up in an idea and buried deeply inside a product or breakthrough. But that impulse is misguided when innovators are so wrapped up in an idea that they are unable to step back and view a project, technology or idea from an outsider's perspective.

It is next to impossible to clearly explain one's work when that individual is too deep in the weeds of the technology or the science, or they are too out of touch with what the marketplace and consumers want. Even the most amazing product needs a compelling sales pitch. That is, a pitch that makes it easy for anyone outside of the company and without industry expertise to understand why they should care about the product or technology.

The best entrepreneurs take the time to step back and learn to tell the story of their work, in a way that anyone, from any generation, from any background, can understand.

As a venture, startup and entrepreneurism expert, Haig Farris illustrates this idea well based on his experience at D-Wave and with co-founder Geordie Rose.

"For some people, the ability to explain complex problems simply is natural," Farris says. "For others, it's a skill that's buried deep. Others may not have it, and that's something you need to learn too, so you can find someone who can do it for you. With Geordie at D-Wave, his ability to explain quantum mechanics and how computing fit into quantum mechanics was a thing of brilliance. I asked him to give a talk on it one day in class [at the University of British Columbia (UBC)]. He stood up and gave a lecture on quantum mechanics and everybody walked out having some idea of what it was about. That ability to communicate is something every successful entrepreneur needs. It's when you can make the leap from trying to teach people about your idea to actually showing them what the value really is."

Not an easy feat since D-Wave is a pioneering company in quantum computing, which generates computational power that outpaces what traditional computers can achieve. D-Wave was the first company in the world to make quantum computing commercially available, and its early clients included Lockheed Martin, Google (partnered with NASA) and the Los Alamos National Laboratory. Farris co-founded the company in 1999 with three other partners including Geordie Rose, who took a business and entrepreneurism course that Farris taught at UBC.

As Farris says, this skill to convey complex ideas in an easily digestible form does not come naturally to everyone. But it is a crucial tool in an innovator's toolbox. An audience on the receiving end of a product pitch may not welcome a scientific lecture, with details galore of why a product works and the technologies behind it. But they would want a clear and compelling explanation of what the product is, what it does and how that will benefit them.

The strongest pitches are brief and often called elevator pitches. They clearly explain an idea or product in at most three sentences or the time it takes an elevator to move between several storeys. Entrepreneurs must craft and commit to memory a short, one-minute explanation of the value of their innovation.

ITAs encourage entrepreneurs and innovators to make their explanation relatable not only to the target industry, but also to consumers, investors, other industries and the general public. It is important to get comfortable discussing and answering questions about their company, their product and even their technology using less-technical words.

Brilliant ideas need to be translated into simple language. Since Einstein's complex theories can be explained in a couple of pages, no one's work should need a 30-page whitepaper to be understood. With decades of experience helping entrepreneurs and brilliant founders, ITAs have met many who see this task of simplifying a pitch as unnecessary or a waste of time. But, those who take the time to master it are typically the ones who surpass their competition.

No time is wasted with the right mindset

It can be tough to entrust work to others. Entrepreneurs are often reluctant to do so. All too often, they consider letting go of a product and stopping work, even for a moment, as time wasted. However, for any sort of commercial product, it is essential to get a product or technology into the hands of others, whether for market testing, focus groups, troubleshooting or collaborative initiatives. Customers and business partners tend to experience a product in ways a creator rarely anticipates.

By not involving others, entrepreneurs can find themselves trapped in a perpetual loop. "If I am not working on the project, it is not improving. If it is not improving, it will never be ready. It will never be ready if I am not working on it." And so on.

To create the best product for an industry or an audience, entrepreneurs must know what consumers want. Even if they have perfected a solution to one specific problem, they may find that people are less interested in perfection. Rather, what people want might be the quickest solution or the easiest one or the less expensive one.

"Every step needs to be approached with a growth mindset," says Ryan Holmes, Hootsuite's founder. "Even if the time you spend on something ends in failure, it's not wasted. That failure will help you refine your product toward what the truth is. You can get caught in a perfection loop, never getting feedback from the market or customers. If something is just sitting in the lab, you can't get feedback on it. You need to know as an entrepreneur that often 'out the door' isn't the end of the journey, especially if you're in tech. Having a product in the hands of your customers is just a step along the way. It's always getting refined. Having a product out in the wild means you get critical mass feedback, and you get lessons and learnings that are invaluable to creating the best thing you can."

As Holmes says, "Every 'waste of time,' every failure, is an opportunity to improve your business. Or yourself."

Fighting the instinct to take on everything

Prioritization affects every aspect of entrepreneurship. Wise entrepreneurs understand that even if they are multi-talented or they are the person who knows their business best, they may still not be the ideal person for a task. Instinctively, a driven person will step up and do something themselves when they spot something that needs doing. And yet, there is value in knowing when to step back and admit that there are better uses of your time.

"From the moment you hire your first employee and start paying them, the clock starts ticking and money starts draining," says Ajay Agrawal, founder of the renowned Creative Destruction Lab (CDL) at University of Toronto. "You don't have time to be going off and focusing on the wrong things. You have to be building value in your company from day one. You need to know how to prioritize."

In Agrawal's view, when people spend time focused on work that they are unsuited for, that is time that could be better spent on priority tasks.

Maybe they are unsuited to managing budgets, hiring staff, conducting outreach or other tasks outside of their core skill sets. Put another way, even when innovators and entrepreneurs are busy, often very busy, they are wasting time. Every hour they put into work that they should have delegated, outsourced or asked for help with is an hour when they could have been building value in their business.

They will need to be aware of the different business functions, but there comes a time when they should not be trying to take care of everything themselves. When Agrawal started Creative Destruction Lab and met with entrepreneurs at various stages of their enterprises, they shared many common strengths. However, it was their shared weaknesses and how they dealt with them that showed who would succeed and who would not.

"Everyone I met was hard-working, and there was no lack of smarts," Agrawal remembers. "They all came from backgrounds in engineering, computer science, medicine or tech, and all had Master's degrees or PhDs. The problem was that even though they were very smart in their chosen domains, most had no background in building a business.

"When an entrepreneur wakes up in the morning, there is always a list of a thousand things to do, and you clearly don't have the bandwidth to do it all. If you don't have a level of business judgment, you're not going to be able to look at your list and pick the right things to work on. You could waste months of hard work on the wrong things," Agrawal adds. "I would see the same cycle repeat itself. These people would run out of time, money, energy, even sanity, and then the business collapses. In my experience, and according to the statistics, that was the most likely outcome."

Agrawal believes the solution is finding the right resources to help take the work off of busy entrepreneurs' hands and get it done.

"A lot of entrepreneurs and founders in Silicon Valley have gone through the experience of being at a company that went from two employees to five, and then from five to ten, then a hundred, five hundred, even up to a thousand or ten thousand. From being in that environment they learn what it takes and how to approach the work. Then they go out and take that knowledge to a new company, which helps flatten the learning curve and improve the chances of success," Agrawal says.

These lessons can be applied by any founder in any business. All it takes them is a willingness to honestly appraise their skills, capacity and capabilities. Then apply their time and talents to the right work, while seeking assistance for the rest. This will help them ensure that they avoid running themselves ragged and instead they can focus on priorities or what only they can do.

Stepping back to find balance

The notions of hustle and grind are unlikely to vanish, but most communities, industries and audiences are more willing to accept and adopt efforts to find healthier balance in work lives.

Employers, employees, investors and customers alike understand that working 24 hours a day, all week long is not healthy or sustainable. Whether they admit it or not, they also know everyone must step away from work or unplug once in a while to stay sane. Even the most passionate, tireless and dedicated founders must sleep and can benefit from relaxing during an afternoon off or dining with family and friends.

"You need a balance in your life," says David Armstrong, founding President and CEO of IatroQuest. "And nowadays, if you talk to venture or institutional banking, you see that there is insight into mental health in entrepreneurism, and they're much more conversant in this area than they would have been 20 years ago, or even 10. The people providing the money understand that there has to be that balance. If they just push, push, push, they'll find the investment they made running out of steam. It will kill the golden goose."

Some of the most successful people in the world also swear by the benefits of a blank calendar.

"A reporter once asked Charlie Munger about why Warren Buffett is so successful," says Paul Lee, Managing Partner at venture fund Vanedge Capital. "The answer was: he's got time to think." Buffett does not pack his day with meetings. CEOs of companies are the head of the strategic direction, but if they are constantly trying to dip into other areas and help out on other work, they will get pulled in too many directions at once.

"It's like in baseball. If you're the shortstop but you go to help at second base too early, what do you do if the ball goes to short? You need to make sure your position is covered before going somewhere else," Lee says. "And as a founder or a CEO or any other type of entrepreneurial leader, your number one job is understanding and negotiating where your company fits in the strategic direction of your industry."

That matches Lee's earlier advice, less is not less. To thrive and grow, entrepreneurs and innovators need the space and time to continue to generate the brilliance that brought them to their position in the first place.

"Every entrepreneur is working 24/7," Lee says. "Even if it's not 'work,' you're always thinking about it, at home, in restaurants. It never stops. But most of the greatest ideas and the biggest breakthroughs come at any time. You need to have the time to come up with those ideas because the next one could be even more valuable."

Industry veterans, up-and-coming innovators and ITAs recognize that entrepreneurs need to give themselves permission to step back and enjoy a quiet evening with a book, watch a movie, go to a yoga class or whatever makes them re-energized. The incentive runs deeper than the immediate benefit of those activities, but that the time well spent can fuel future creativity and productivity.

Someone can have a great idea that starts them on their entrepreneurial journey. But, if they are too busy to take time off to think, then they are getting in the way of being able to dream up their next idea.

Hard work and time not spent on work should no longer be viewed as opposite ends of a spectrum. They are interconnected and can either fuel or suppress one another. All the more reason for entrepreneurs and innovators to objectively assess their own skills, weigh their priorities, involve others and prioritize where and how well they spend their time.

CHAPTER 5

MONEY

There is a cost associated with all aspects of business. Whether it is to create a new product, hire top talent, move a startup through its growth phases, accept an acquisition offer or choose to retire and sell a business.

But it can be daunting to ask for, secure and effectively manage money. Hard as it may be, getting an entrepreneurial idea to market takes capital. Arlene Dickinson from Venturepark and CBC's *Dragons' Den* encourages entrepreneurs and innovators to "be unafraid to run toward the hard things."

Dickinson heeds her own advice. With decades of business experience to her name, she decided to tackle entrepreneurship in her fifties. Dickinson felt Canada's agricultural and health sectors were underserved. She saw a lack of support for them to evolve from being a source of "great raw ingredients" to succeeding as value-added businesses for food and wellness markets. Instead of complaining about what was missing, she founded an accelerator and a venture fund to fill those gaps in support.

Since she was venturing into new entrepreneurial territory, Dickinson contacted NRC IRAP for help to bring her vision to life. Her resulting endeavours, Venturepark Labs and District Ventures Capital, have since reaped tremendous economic gains. A May 2022 report presents the findings of economic impact analysis of Dickinson's accelerator and venture fund.

The 101 businesses supported by Venturepark, from 2015 to 2021, led to direct job creation, from 25 positions in 2015 up to 1,050 in 2021. The businesses generated an estimated total output of $1.6 billion, translating into $577 million in gross domestic product. They also contributed $139 million in direct and indirect government revenues. And 21 of those Venturepark-supported businesses were among the 38 portfolio companies that received investments from District Capital Ventures.

Now that is impact.

"The value we've added to the economy, to people's lives, to the thousands of jobs that have been created, to the communities that have been supported, to the exportability of the businesses to sell their goods around the world, this all started because IRAP sat down with me, listened to what my vision was for this accelerator and supported me," Dickinson says.

"And if that hadn't happened, you know I had my own capital invested. I had other sponsors, but it really was the turning point when IRAP came in and said, 'We're going to help you do this. It's different for us to do it this way, but we're going to do it,'" Dickinson adds.

Reach out

Dickinson knew enough to reach out. However, the mythical notion of a self-made businessperson persists to this day. That notion glorifies the lone genius or self-funded industry renegade, someone who not only dreams up a new product, service or business, but also overcomes all obstacles and turns away offers of support. In real life, few people actually get ahead doing everything solo.

But the myth leaves Canadian innovators and entrepreneurs with the misguided impression that anyone who accepts help, even financial support, to get their company or their idea off the ground has betrayed their gift, their vision or their work. That is unnecessary pressure, especially when there is plenty of support available nationwide. Far more companies and innovative people have succeeded after asking for and accepting help than those insisting on doing everything alone.

Cost-sharing is one approach. The Government of Canada has made it easier for small and medium-sized businesses to bring in young interns through a Youth Employment Program, delivered by NRC IRAP. Businesses in need of help with R&D activities or even market and business development can propose a project for which they would like to hire a post-secondary graduate who is younger than 31. If accepted, the businesses can cost share that intern's salary for up to a year with NRC IRAP.

During the COVID-19 pandemic, NRC IRAP also delivered over $370 million in federal wage subsidies to help innovative Canadian small and medium-sized enterprises (SMEs) like Guardian Chemicals keep critical talent on payroll despite the economic downturn. Those wage subsidies supported more than 2,200 businesses. Pandemic aside, NRC IRAP supports a firm's growth ambitions by providing funding along with technical and business advice, connections and referrals and even linking innovative Canadian SMEs into global value chains.

There are also federal programs like the Accelerated Growth Service, which helps entrepreneurs and businesses gain access to the support they need to grow. And innovators and entrepreneurs can turn to provincial and territorial programs as well as government grants, loans and contributions for additional support.

Beyond direct government support, there are organizations like Mitacs and Futurpreneur Canada that have funded tens of thousands of innovation projects or paired young talent with Canadian startups or SMEs. There are also funds that focus on particular groups like Femmessor for women entrepreneurs in Quebec or the National Aboriginal Capital Corporations Association for Indigenous entrepreneurs from coast-to-coast-to-coast.

Canada's private investment landscape

Despite having one of the world's most educated workforces, well-respected universities and research centres, some company founders feel that Canada can be a challenging place to find private equity or venture funding. The reasons vary for why such challenges exist, if they exist at all. Financial temptations do abound from places like Silicon Valley or a tech hub like Boston. As tempting as the money may be, the idea of attracting or needing American investments can be disheartening for Canadian entrepreneurs who are proud of their made-in-Canada innovations and want to keep them “at home.”

According to the Canadian Venture Capital & Private Equity Association (CVCA), private capital accounted for more than $242 billion in funding since 2013. Whereas, according to PitchBook and the National Venture Capital Association, U.S. startups have been known to attract nearly that much in a single year, with U.S. private capital investing $238 billion in 2021 alone. Keep in mind that those investments went to more businesses and were drawn from the larger U.S. demographics of more people and more investors.

Meanwhile, the CVCA reported that in 2021 private capital investments grew to $14.2 billion in Canada. That money flowed to Canadian companies through a record-breaking 752 deals, up from the pre-pandemic record of 539 deals set in 2019.

Further encouragement arose from the 2021 CVCA report because the results spanned companies in the earliest stages through to successful initial public offerings on stock exchanges. When Coveo Solutions, a company using its artificial intelligence to power a platform for e-commerce and other digital applications, listed on the Toronto Stock Exchange it was among the larger 2021 publicly traded deals.

“A different kind of economy will come from monetization of our intellectual property,” says Louis Têtu, Chairman and CEO of Coveo. “It’s really important to create leaders who in their wake also create ecosystems and help keep the talent and the wealth creation associated with it.”

As of 2021, Canada was home to the headquarters of nearly 550 private equity and venture capital firms, with at least one in every province. They manage hundreds of venture funds that have invested in thousands of Canadian businesses. NRC IRAP support to client firms often becomes a factor that spurs venture capital and angel investor interest.

Additionally, as part of Budget 2022, the Government of Canada announced the Canada Growth Fund to attract private capital to invest in building a thriving, sustainable Canadian economy.

Still, challenges remain. One example is that there are different levels of private and government support and investment available for certain industries. Arlene Dickinson has experienced that challenge firsthand.

"It can be a problem," Dickinson says. "There's a lot of money in tech innovation funds, but if you're in the food industry, and seeking venture capital funding, there are basically only three funds in Canada that are focused on your industry, and that's ridiculous. We're a country of health and agriculture expertise. Energy, health and agriculture are the three top employers in our nation, and we have capital for energy and tech, but not for agrifood or the health and wellness space? How are these companies going to grow? They have to go to the U.S. for money or they end up petering out because they couldn't get the support they required.

"That's on us, as a nation. An entrepreneur is just trying to build. When you need to make a decision like that to look outside Canada for money or go out of business, that's not selling out, that's a shame," Dickinson says.

That lack of investment culture in one of our country's major industries was a big factor behind Dickinson's decision to launch District Ventures Capital. Things are changing for the better, but even in underrepresented industries, she believes there is still a significant amount of capital in Canada for companies to access.

"There is lots of money out there. There's venture, pension funds, private equity and government, including IRAP. Some are more risk averse than others, especially with early-stage companies," Dickinson says. "One could argue Canada needs more growth capital, that there isn't enough for companies looking to build past a certain level. But there's lots of money for startups. If you're a startup and you're not seeing anywhere to find money, you should keep looking or ask yourself if you need to amend your idea or pitch to attract the capital that's there."

Haig Farris of Fractal Capital, who has spent decades working with and advising companies during their funding stages, agrees, "There's tons of money around. The question is: How do you get at it?"

He suggests thinking about your business and what matters to potential investors, and then fine-tuning your strategies for seeking funds.

"Does your product have potential? Do you have the people to run your company? Do you have an IP strategy? There are endless issues to address, but they're all achievable. If you address those issues, you can get money," Farris says.

Farris has little patience for individuals who dismiss Canada as a place for finding investors and make generalizations about U.S. tax rules beckoning. He argues there are “ways to find non-diluted money in Canada” and he believes that people who complain the most about such matters tend to be the ones “who shouldn’t be in business anyhow.” His advice is to keep looking and connect with the right people.

“If you have the hustle, and the vision, and you talk to a range of people, you’ll find resources you didn’t know were in place. Find people in a startup who have been there and done that, someone who can open a door for you and lead you to the right person. There’s complexity to growing a business, and entrepreneurs need to find mentors to help make sure they cross the t’s and dot the i’s,” Farris says.

Get comfortable talking about money

Talking about money is still a taboo subject in parts of society. Many cultures, generations and corporations consider it impolite to discuss salaries. At restaurants, servers flip a bill face down on the table or tuck the bill in a folder to hide the “damage.” High-end stores and restaurants list products or menu items without showing their prices.

If entrepreneurs are to do well in business, they must get over the idea that there is anything wrong with talking about money.

Canada’s investment community is a welcoming one. Money is out there for the taking, but entrepreneurs need to know where to look. Organizations exist that are set up to support promising startups and help dispel the stigma of asking for money, such as crown corporations like Business Development Bank of Canada and Export Development Canada as well as credit bureaus, local banks and not-for-profit associations.

Haig Farris recommends that entrepreneurs start making new contacts, asking more questions and finding mentors. The entrepreneurial community in Canada is a generous and helpful one. Entrepreneurs who do the legwork will find someone who can point them in the right direction. NRC IRAP ITAs are resourceful and knowledgeable when it comes to funding sources and strategies. They will coach their clients and then mine their professional networks of contacts to put entrepreneurs and innovators in touch with individuals who are best positioned to help, either directly or indirectly.

Such help is important. That becomes clear when entrepreneurs and innovators learn to be impartial and honest with themselves in assessing their financial situation. From the moment they launch a new business, they start to draw down on their money for expenses ranging from office or lab space to equipment and materials, from salaries and insurance to shipping and marketing, from travel to business licences, from websites to professional services.

As the expenses increase, entrepreneurs must watch their finances, or the bottom line, closely. To keep a thriving business, they must know what their exact costs are, how much they will need to spend and that they have left room to cover unexpected expenses. They also must compare those numbers to how much money is flowing into their bank account.

Ties that bind

As essential as funding is, entrepreneurs must also realize that bringing in dollars from someone else usually means that money comes with strings attached. To gain that dollar, they had to convince someone else, maybe a customer, a bank, a family member, an angel investor, a venture capitalist or someone at another organization to part with that money, ideally in return for something of value.

Persuading different audiences takes different approaches. Customers want a tangible, valuable product or service that improves their lives in some way. Sales will not happen if entrepreneurs fail to communicate in a way that makes their value clear to potential customers. For their part, investors, such as financial institutions, private equity firms and venture funds, look for assurances that their investment will be either rewarded with gains or repaid with interest.

Select family members and friends may offer to put money in a business for no other reason than to help out, as long as they know they will be repaid eventually. Regardless of the type of investor an entrepreneur is facing, it is important to be clear and straightforward about plans to develop the business and make good on that investment.

Discussing financial matters and dealing with investors may not come easily or quickly. Some entrepreneurs spend years learning to hone that skill and become comfortable discussing financials. When entrepreneurs can talk about financials in a way that inspires confidence, they boost their chances of securing investments.

Speaking with such conviction is tricky considering how emotional it can be to deal with big investments that could make or break the future of the business. Hootsuite founder Ryan Holmes has been through it all and looks back with a refined perspective.

"It's easy to get caught up in the vanity metrics around venture capital," Holmes says. "Raising $1 million is great validation, but you need to step back and not get too caught in that. There are layers of implications that go along with it. You need to get away from your ego and assess if it's the right thing for you and the business. It's a very personal thing for people, so it's even more important to think about it critically before making any big decisions."

The fundraising process even motivates some people to help create the resources and assistance they wished they had when they were in the early stages of their entrepreneurial careers. Take Michelle Laflamme, President and CEO of medtech company EMOVI, as an example. When starting out with her company, Laflamme found there was little support for navigating the investment stage. Her response was to make it easier for others. She took it upon herself to create a community for people like the young entrepreneur she was in EMOVI's early days.

"When you're trying to raise money, you look at local organizations: the BDC, angel investors, and so on. And each have different criteria to invest in you, and often you cannot please everyone," Laflamme says. "You try to see where the best opportunity lies, but so many questions arise: 'Where should I go?' 'Who are the best people to talk to?' 'Should I explore private funding or angels or banks?' 'How should I structure?'

"You talk to everyone. You create multiple business plans. We had eight or nine separate ones. And you build boxes for your business to fit inside that investors will understand. It affects your vision of your company by trying to do so much to please others, and impacts the path that will ultimately be the best choice. I thought the best way to change this would be by changing the culture," Laflamme says.

That desire is what led Laflamme to form PME MTL, a support network for businesses to receive coaching, training and financing. The organization now has six service hubs across Montréal; each one brings entrepreneurs together with mentors and resources to help them launch and grow their businesses.

"The culture, at least in Quebec where I was starting my company, needed to evolve, and that's why I got involved with a few different groups, found partners, built up the right support and started to help harmonize different organizations to align on what they expected from an entrepreneur. Every investor has a certain unique window of opportunities, but it's not written down anywhere. Sometimes the timing is wrong, or the criteria are different," Laflamme says.

"You need to learn to create relationships. Business opportunities come when you build a relationship, maybe even with an investor who said no at first. You grow that connection and then a year or two later, they say 'I like you, I like what you do, I'm ready to invest.' When I started, there were no books to tell me exactly where to go. I wanted to build something to help entrepreneurs understand that pathway," adds Laflamme.

Laflamme embodies just one example of the collaborative and nurturing community of innovators and entrepreneurs who can help newcomers and aspiring businesspeople to get the information they need and find their footings in a challenging world.

Enter the mind of the investor

When founders of a small business are looking for investments, they are the foremost expert on whatever innovation they have created and want to share it with the world. What they may not understand is the inner workings of the mind of the person who could transfer them funds to cover the years' worth of R&D that it will take to be market-ready.

Many of the Canadian entrepreneurs in this book have gone on to become successful investors themselves. They have experienced both sides of the equation: needing money and deciding whether to give money. This dual level of insight helps shine a light on what aspiring innovators must know to give themselves the best chance at connecting with an open-minded or like-minded investor. Or better still, for them to turn an uncertain investor into a new partner at their side.

Key to making those connections is understanding what investors want to see in entrepreneurs or innovators who approach them for money. Being confident, aware and prepared will carry entrepreneurs far.

Entrepreneurs can start by looking at themselves from the investors' perspective. Thinking like investors makes it clearer how to prepare to pitch them. For starters, if an entrepreneur is to face angel investors or someone from private equity or venture capital, then asking them for money is not an imposition. Even if feels like that at first. Investing money is literally their job.

"When fundraising, a lot of people will go to see an investor, some really smart person, and they'll look at it like the investor is doing them a favour by giving them the meeting," says Ryan Holmes of Hootsuite. "Entrepreneurs get caught in that thinking, and I often challenge them to look at it differently. In going to meet with an investor and talking about what you're doing, you're presenting them with an opportunity. It's a two-way street. You're doing them a favour too. Not enough entrepreneurs think in that way."

Holmes reinforces that point by noting that investors who make zero investments are "bad investors." Investors only get ahead if they invest and invest wisely.

"Meeting with them is validating what they're doing, letting them do what they set out to do, which is invest in businesses. What you need to do is be strategic with the partner you pick. Do your research. Find somebody well aligned with you and what you're doing, and who has similar aspirations on timelines, is well respected, all of that," says Holmes. "The good news is that there's more capital than there's ever been before looking for places to invest. When launching Hootsuite, there was Series A and angel, that's all we had access to. Now there's seed, pre-seed, multiple rounds, more granularity to the vehicles that are out there, more ways to structure. Now is one of the best times to raise money."

Businesspeople can do much to structure their companies in ways that help build investor confidence as the companies grow. If a company is gaining momentum and beginning to put together more formal financial and leadership infrastructure, then Terry Matthews of Mitel and

Newbridge Networks has advice to offer. He understands what investors consider to be important indicators and what they will look for from founders who want to attract talent and put in place the right people and systems.

"If you're looking to set up a board, whether the company is big, small, public or private, the makeup of that board matters for visibility and profile," Matthews says. "An important position to put a lot of thought into is the chair of your audit committee. If you can, one thing to do is to seek out someone who used to work at one of the big auditing companies, say Deloitte for example, or a former C-suite [executive] person from a big company in Toronto or Paris or New York. Those types of people, and people from the large auditing companies, step onto boards all the time. Their network is excellent.

"For instance, take somebody who retired in the last two years from Deloitte or PwC [formerly PricewaterhouseCoopers]. Offer that person a position on your board, or as chair of your audit committee. With their name attached, every time you put out a financial report, it's believable. Their reputation matters. And investors take notice," adds Matthews.

Businesses at any stage can be put in a better position to catch the eye of potential investors. Apart from displaying confidence, entrepreneurs must research their potential investors individually, look for alignment with what investors themselves are trying to achieve. Before approaching investors, any entrepreneurs or innovators should think strategically when making decisions on the image they want to project and who they approach to take on important positions in the business. Wise investors rarely come to be in a position to invest millions of dollars by chance. They did and will do their homework. Likewise, entrepreneurs must do theirs.

Be true to oneself

Personal and business strategies vary when it comes to exits. A founder might choose to stick with a business until retirement calls. Someone else may get a thrill from setting a novel idea out into the world, but they have no interest in building a business themselves. A merger or acquisition offer from the right company may ease a small business's way into another league of customers or markets. Each person will react in different ways. How any one person will behave depends on their own opinions, plans, dreams and inclinations.

There are entrepreneurs who enjoy building businesses to sell them. They have an idea and run with it as far as it will go. Then once a buyer comes sniffing around, they see their natural exit point. On to the next thing to build. Managing and growing an established business are not what excites these entrepreneurs. They run with their strengths.

Meanwhile, some entrepreneurs are more closely tied to their ideas and what they have built within their company. This type of founder is unlikely to be swayed by lucrative offers, no matter how frequently potential buyers express interest. That founder might consider the business they created and grew to be theirs and theirs alone. No one is going to wrestle it from them.

Other entrepreneurs have yet to figure out where they want to go, what they want to do and what is best for the business. If they fail to figure out what is needed, the indecision can lead them to cling to a position to which they are no longer suited. Knowing when to step back or step aside is as important a skill as doing the work itself.

When Dave Krysko, Lane Merrifield and Lance Priebe were in the process of selling Club Penguin to Disney, each of the men had different feelings and took on different roles after the acquisition. For Krysko, his perspective came from being an older, more experienced businessperson who understood his strong points and his outlook on the future.

"The decision to sell to Disney came about because we knew we could only take the company a certain distance," Krysko says. "We needed someone else to take it further. We were getting into offline products, toys and merchandise. We needed the capacity to expand into other languages. On the tech side, the server side, there weren't many companies doing what we were doing, and when we were putting more than 100,000 people on a server, all interacting, there was data load and technical ceilings we needed help with. It was growing beyond us.

"You need to know what you can do and what you're really good at. Be honest about that and get ego out of it. Success is a shifting window. Success to me 25 years ago was being in business for my entire career.

After Club Penguin and the Disney purchase, that changed," Krysko says. "You need to plan for your comfort level, which is always changing. When something is growing like that, somebody has to carry the brand. Sometimes it's the founder, sometimes it's others. I felt that Lance and Lane had that, they carried it for us. I didn't have any problem with that, I was happy to step aside."

There are also times when a business has evolved to a level where a founder is no longer the best person to lead it. Knowing when it's time to step back for the good of the business is something that is also a hard lesson for some entrepreneurs to learn.

"The head of a company can have the skill set for one phase of work, say product development, but not have a clue how to build and run a business," Haig Farris of Fractal Capital says. "They could have all sorts of wonderful ideas about needing to create this, that or the other product. And they're a wonderful choice for 'right now,' but once a company needs to move to another phase, they'll be toast. It's hard for some. You can't always lecture smart people, they think they're right even when they're not. Or there are others who get it right away, and know when it's time to hand the business off.

"I always emphasized it when teaching my university course on business to inventors. The students began to realize that very smart people have very different skill sets, and you need to be able to use them or put them together properly to make a company successful. For example, some people have great presentation skills but can't manage anything because they aren't well organized. You need to see your place in the world and understand your own motivations if you're going to succeed," Farris says.

Motivations

Early on, company founders must ask themselves why they are starting the business. Are they creating a business or product to build a company for themselves or for the world? Are they wanting to show their potential as an innovator or to become a fundamental part of the larger industry? Once they can answer these questions, entrepreneurs are better equipped to judge whether investments or acquisition offers are right for them and if the timing is right.

When someone succeeds at building a business or developing a new, sought-after technology, others are naturally drawn to that success. For some entrepreneurs, it can feel like suitors are everywhere, wanting to invest, partner or buy out everything. Depending on someone's motivation to build a business, that kind of attention can be the best possible situation or it can be unwanted distractions.

"Every few weeks, we get someone asking to buy us or transact us somehow. Putting it like that overstates the importance of it a little bit. Sometimes it's to build a relationship, and there's also just a ton of business brokers who want to find someone who wants to sell their company. I'm not interested in selling," says Scott Phillips of StarFish Medical. "Personally, I don't need more money; it wouldn't affect my life. The process of working here is its own reward. Designing a company you want to work in is also designing your life, not just a competitive advantage to be measured in money."

Phillips has a very relaxed attitude about the realities of running a successful business while navigating a commercial climate that can be competitive or driven by the pursuit of maximizing profits. Like Phillips, entrepreneurs can be motivated for reasons beyond becoming rich. Some build businesses to create the services they want to see in the market. Others do so to show that there is value to be found, regardless of where a company is headquartered.

"When we were fundraising for SkipTheDishes, we were first-time founders and no one knew us," remembers Andrew Chau. "When we went to Silicon Valley or to New York, the feedback was always: 'Why aren't you building in Toronto or the Valley or NYC? Why the Prairies?' There were a lot of 'no's' because of that, and we took that away and internalized it. We realized that that was who we were and that we do things differently. We believed and wanted to prove that you can build meaningful businesses in Canada, outside of Toronto, Vancouver or the other big cities."

For entrepreneurs who build the kinds of meaningful businesses that Chau talks about, staying independent is a long-term goal. Often part of that goal is to grow to the point that their company can mentor or even invest in smaller startups. Frequently, this is the case in industries without many well-established, especially large companies in Canada. In the field of medical technology, Brian Ward of Medicago and Armen Bakirtzian of Intellijoint speak along similar lines.

"We need to train Canadians not only to have good ideas, but also to have the knowledge to push their businesses forward," says Ward. "When a company grows in Canada, it translates into high-quality jobs in our country, and taxes paid on profit in Canada, which are both important benefits. Collectively, we've not managed to have all the elements together to build the industry here from innovation to commercialization to final product.

"Unfortunately, there's still always a place where a company is getting out of the country due to acquisitions or lack of investment. Medicago is one of the few examples of companies that stayed. There needs to be a willingness in stakeholders to make companies viable in the long term. Eventually, Canada's tax credits and our investment in training, science and manufacturing will attract big pharma, but we're still putting the pieces of the puzzle together," Ward says.

Armen Bakirtzian's view is as a founder of a younger company and someone who has more recently gone through the process of funding a firm's early stages.

"We don't yet have the right infrastructure and investment players to have large medical device companies in Canada. Right now, our ecosystem is designed to start companies and then sell them off," Bakirtzian says. "I've found that many of those who fund our industry aren't patient enough to let companies grow to where they can buy and invest in smaller ones rather than just being bought themselves. It takes a lot of time. I find there's a bit of a one-track mind for acquisition. And investors can end up training you to think like that, about 'building for sale.'"

Bakirtzian calls that mindset "unfortunate." He wants there to be different options or paths for entrepreneurs to choose for their companies. That way entrepreneurs would be better able to build a vision and align themselves with investors who can help realize that vision.

"I'm hoping to be a part of building that ecosystem that includes more patient capital and investors, to help more companies get to that 'mega-market-cap' status. It's my intention to stay independent and become one of those large companies in Canada that can then help more entrepreneurs and companies succeed and grow here," Bakirtzian says.

For some innovators, it is top of mind that the technology at the heart of their company lives on. For them, the more practical motivations like business success or growth tend to rank lower than the technology's longevity. As an academic at heart before being an entrepreneur, Stephanie Willerth, co-founder and CEO at Axolotl Biosciences, puts science first.

"If you left me to my own devices, I would just want to do science," Willerth says. "If a big company wanted to come and buy us, and they've got the facilities to ramp up and churn out inks, if they were a high-quality partner, we might be OK with letting that go. Our IP position is quite strong, and that could scale the tech in a way that gets it into the hands of as many people as possible.

"I try to separate my feelings on it a bit. Wearing my hat as a professor, my goal is engineering neural tissue. With Axolotl, we optimize what's going to make the most money. Our inks are tools in larger processes, they're reagents. My real attachment is that larger process of how we engineer neural tissue," Willerth says.

Valuing what matters

While Canadians are known for their creativity and innovations, at times Canada is seen as having less success than other countries in getting innovations to market. That perception can affect how much money flows to startups. Based on being a founder at EMOVI and as someone who works with entrepreneurs through the PME MTL initiative, Michelle Laflamme sees those challenges and knows what it takes to overcome investor hesitancy or low valuations.

"At times, my perception is that there is less money in Canada than other places, but things are improving, and there are also some great projects," Laflamme says. "We are good in Quebec, and in Canada as a whole, at developing new technologies and being innovative, but we have less success selling and commercializing. If you look at regional investment per patent, it is lower in terms of outcomes than other countries.

Commercialization needs to improve, which will in turn motivate investors who succeed to help other entrepreneurs.

"Companies get higher valuation in the U.S. for the same product, same people, same technology. I've used that in my negotiations with investors here. If you want to protect against dilution in your funding, you need to analyze the market, see what exists out there, speak to investors everywhere to see how they position your company and what the appetite is. It gives you all the information you need to make the right decisions," Laflamme says.

Laflamme points out that investors will negotiate on every aspect to get as much benefit on their side as they can. She aims to teach entrepreneurs to negotiate too. What does that mean?

"Creating networks and building relationships that help founders learn from those who have done this before and pass that along, like how to get the right information, the right valuation, all of those things," Laflamme says. "Even as a lawyer, which is where I started out in my career, I didn't realize the impact of these sorts of things on a daily basis. That knowledge needs to be shared to startups that are starting down this road."

Ajay Agrawal, through his creation of Creative Destruction Lab (CDL), enjoys a position where he can watch relationships between startups, mentors and potential investors grow from their earliest stages through to successful company launches. Part of his impetus to form CDL came during his PhD research at MIT.

"My research question was to explore the variation in the commercialization of inventions from MIT," Agrawal says. "Essentially, why were some much more successful than others? Was it that the technology was better in the ones that succeeded, or was it something else? I started getting quite interested in the role of the inventor."

From his starting point of examining the success or failure of various technologies, Agrawal came to find a more complex interplay. It involved the strength of the ideas, the attitudes and intentions of the investing companies, and most importantly, the involvement of the inventors themselves.

"At that time, it was common for a scientific inventor to have an idea, and to bring it to the technology licencing office at the university. Then, companies would come from outside the university to the office, and it would be like a bazaar of ideas. They'd look around, saying, 'Oh, this one looks good and that one looks good. Can we licence those?' They would then take the idea and go off and try to commercialize it," Agrawal says.

However, often when companies want to use a technology and take it to market, they need it to do something different than what the innovator originally intended. Or they must use alternate components. Agrawal realized it is hard to successfully tweak a technology without the original innovator who had the idea and who understands all the science or engineering behind it.

"What I was finding was that the inventions were bundled with the inventor. In other words, the inventor came along to the company, as opposed to the ones where the company got the idea but not the inventor, which seemed to account for a lot of the variation in success. The inventor so deeply understands the idea, they are able to adapt it to all the changes that are required to commercialize it," Agrawal says.

Some investors or companies acquire new technologies or smaller startups only for the patents or licencing agreements. But as Agrawal found, success is more likely when the original inventor is around to help. Many companies and investors are coming to realize this is the case.

When entrepreneurs or innovators have the potential for a technology acquisition or licencing, Agrawal urges them to keep his findings in mind when they are assessing the pros and cons of their arrangement. An investor's attitude toward them and their idea, and how the two are often closely related, can be an indicator of future success. It can also be a data point to guide their investment decisions.

Cast the net wider

There also comes a time where a company simply cannot go any farther without outside investment. Even if they chip in as much as possible of their own "milk money," as Paul Westdal, co-founder and President of TheoryMesh, calls it. Before most businesses can reach a mass-market audience, it takes more money than even a well-to-do entrepreneur might personally have to invest.

"We reached a point with our milk money where we took it as far as we could," Westdal says. "The next steps were far too big. We approached the local industry community in Winnipeg, and there was interest and support, but there weren't the resources we needed locally, about $2 million in the late 1990s. You can't take those next steps without being prepared to enter into partnership with others.

"I understand the notion of being wary of mergers or consolidating with companies elsewhere. One of the motivators was to build here, in Winnipeg, in our sector, as there's only a handful of companies operating in this space. But you can't carry the whole thing yourselves. We were delighted to have the support of others," Westdal says.

Having that extra support is critical, not just from a financial perspective, but for the sake of the entrepreneurs' reputations and their mental well-being. Once they get used to that idea, their outlook on selling changes. Whether they are accepting external investments or undergoing a complete acquisition and buyout, finding validation from outside of their company that what they do is valuable is among the most rewarding parts of being an entrepreneur.

Wade Barnes, co-founder of agritech company Farmer's Edge, sees both sides. He values his company's independence and understands that you need to keep your backers happy.

"The investors, the ones who fund the business, they're in charge," Barnes says. "You have to make them feel comfortable to have them keep writing cheques. You need to give them the confidence that they're betting on the right horse. You need to be creating products that make people excited and make an impact, from both a team standpoint and an investor standpoint. Our first investors were eager to move us out of Manitoba and into Silicon Valley. We had to fight hard to stay where we are.

"We've been potentially bought and sold about 15 times now. There's always someone willing to acquire you when you're successful. There's an excitement in someone wanting to buy you, or when you're offered lifechanging money. But at the end of the day, you need to make your own decision. Once you're acquired, you'll be pushed into a larger organization, and personally I feel like we wouldn't make the same sort of dent in the universe that maybe we make as we are. We are where we are and, for now at least, we continue to stay independent," Barnes says.

As Barnes points out, navigating the realities of finding financing for a successful business is about balancing the reality of the bottom line with one's personal drive and organizational values.

It all comes down to the individual, but that individual must not feel that everything must be done alone. That person should continue to reach out to foster and nurture relationships, including from outside of their local network. Someone like an industrial technology advisor could alert them to a new funding source. Someone outside of the entrepreneur's local network could open doors for more investments. Someone else, who declines to invest early on, may come around to seeing the value of a product, service, technology or company.

Ultimately, it is up to the innovator or entrepreneur to explore and pursue the available funding sources to figure out what opportunities align best with the business needs and their personal motivations. Even if it feels hard to ask for money, they must confidently ask for quality investments, based on an understanding of their own worth and that of their business. Often, NRC IRAP companies are able to attract additional investments as they mature, a testament to the due diligence done by the program.

Before securing any investors, entrepreneurs must get inside the minds of investors and know what they expect in return. This helps the entrepreneurs navigate and balance financial forces. Because in any business and any industry, it is vital to keep investors happy once they have signed on for the ride. That applies whether they are banks, venture capital firms, family and friends, not-for-profit organizations, private investors like angels, or government organizations.

There are others' interests to consider too: boards of directors, partner companies, customers and employees. Many Canadian entrepreneurs and innovators voiced the importance of balancing investors' needs while still staying true to the core strengths of the business and its team's beliefs. They emphasized that entrepreneurs must learn when to give ground and when to push back. Those who identify their own motivation, understand their actual costs, lean into their strengths and recognize value, are better positioned to push back.

That way, entrepreneurs can be ready for whatever they must do. Maybe that means growing their company into a multimillion-dollar business that they take public and continue leading. Maybe they sell the intellectual property to another Canadian company and agree to continue to innovate there. Maybe they accept a full acquisition offer and go off to start a separate business. Maybe they hand the reins to CEO or president with different skills and instead transition into a Chief Technology Officer or Vice-President of Engineering role. Maybe they have a co-founder take the helm while they retire to spend time with family or travel.

No matter which route to funding an entrepreneur takes, that person should never pay attention to potential voices accusing them of "selling out." The same holds true even if that voice is in their own head. They must be true to themselves and do what it takes to finance their vision.

CHAPTER 6

OVERCOMING ADVERSITY

Challenges are an ever-present reality for every business, entrepreneur and innovator. This can be hard for a startup or aspiring entrepreneur to hear. Anyone invested in exploring and researching an idea that could change an industry or solve a global issue is likely focusing all efforts and resources on realizing the end goal. Yet at the initial stages of bringing any business idea to fruition, the importance of flexibility and adaptability remain. Having the ability to face a challenge and course correct along the way can be the biggest reason why some entrepreneurs succeed where others fail.

NRC IRAP industrial technology advisors (ITAs) know well that challenges and setbacks are part of bringing new and better products and services to market. ITAs have dedicated their careers to helping innovators and entrepreneurs through some of the big challenges facing them along the way. Whatever the challenge and at whatever the frequency, NRC IRAP is committed to helping its clients overcome some of the adversity that is part of the entrepreneurial journey.

Most ITAs would agree that a common thread over the decades is seeing entrepreneurs rise to meet challenges across business sectors. ITAs know that lessons learned and knowledge gained from each challenge and each setback have served to better position entrepreneurs toward their greatest achievements.

When entrepreneurs first experience a major setback, they can later realize it was an idea that was unfit for a specific market. Sometimes a new direction can lead to them adopting a much-needed skill set. ITAs are invested in equipping firms with the right information at the right time to help find solutions, push past challenges and keep moving forward. Though it will not take away the pain from any blow, it is important to know that adversity is an integral part of entrepreneurship, and overcoming adversity is part of the journey.

Test and learn

To face challenges and commit to finding a way through them is really what most leaders describe as being flexible and adaptable. In particular, in the realm of research, it is understood that testing, testing and more testing is the process that proves a hypothesis. After all, entrepreneurs who began as inventors or scientists are familiar with spending days, weeks, months and years working on something, only to hit a dead end and have to start all over again. The ability to question what went wrong and to find another way around it, and repeat this as often as needed, is where some entrepreneurs have found success.

Dave Shea, co-founder and Senior Vice-President of Engineering at Kraken Robotics, looks at his scientific past to make a comparison for why failure is often a benefit rather than an obstacle.

"As someone with a background in electrical engineering and mechatronics, I found that you learn far more from failure than from success," Shea says. "When a test succeeds, especially early on in your work, it validates one piece of data. However, when something doesn't work, you spend more time exploring why and how. You dive into the details. It's a natural part of the engineering process."

Other science-minded entrepreneurs share Shea's sentiments.

"Fail early and fail small," says Paul Westdal of TheoryMesh, believing it is best to learn from your mistakes quickly while the stakes are still low. Sean MacKinnon of Loop Energy concurs, acknowledging that "as a scientist, you don't want to fail, you want to push things forward. But through agility and moving quickly, you learn to find a 'no' and then move around it."

Mina Hoorfar, Dean of the Faculty of Engineering at University of Victoria, invites her faculty to embrace a more entrepreneurial approach to academic research. Hoorfar encourages those in her labs to maintain perspective and not, as she dubs it, "quit quickly."

"As innovators, we know where the flaws are when things don't work, so we need to be honest with ourselves. At first, some people get paralyzed after a failure, they can't move on. I believe in giving people the freedom to fail, and to learn that failure is good, and then start fresh if need be," Hoorfar says. "At the end of the journey, they thank me, saying, 'If you didn't let me go through that, I wouldn't have graduated.' As well, after a failure, you're not starting from zero. You know what doesn't work, and you know that this isn't the end of the line, that there are still things to do to get better, to achieve more."

At EMOVI, Michelle Laflamme found herself starting a medical device company as a lawyer. That meant applying learnings from challenges in one field to another, in a similarly iterative and constructive way.

"It takes a lot of motivation to go from having an idea to doing something with that idea. And when you hear a 'no,' there can be a temptation to stop, to move on to something else, but it's important to continue to create and to build relationships, even when the answer isn't what you want to hear. When a person is driven to create a startup, it's just a dream at first. It's difficult. It comes with sacrifice. There are statistics I've seen that say the number of people who have an idea for a startup and actually proceed with it is 17 percent. Even lower in some regions. There are some who just don't make it, and we need to learn how to optimize and improve our rates of success.

"When you face barriers, there's an instinct to abandon what you're doing or change your mind. But a person with those doubts could still be a very good entrepreneur, so culturally we need to give them an opportunity to move on and do something else," Laflamme says. "For too long in Quebec, if someone failed as an entrepreneur, or went bankrupt, they simply went back to their lives and their experiences were lost for others to learn from. We didn't leverage the knowledge of people who go through the process.

"It's vital to know that failure is not the end," Laflamme adds.

Laflamme's colleague, Alex Fuentes, Chief Science Officer at EMOVI, points to one particular example to demonstrate Laflamme's point.

"The stethoscope took 75 years to be adopted, and now every doctor has one around their neck. When you start the journey, you need to know that change is hard. Change takes time. Doubt will come every day. But you need to trust your gut feeling and have the drive to keep going."

Keep at it

The motivation to keep up is a learned behaviour, according to many entrepreneurs. And staying motivated in the face of challenges is no small feat.

Paul Lee, Managing Partner of Vanedge Capital, has seen a lot in his career going from a small independent game company in Vancouver to President of EA and then to working with up-and-coming startups in the venture capital world.

"I read a survey a long time ago that interviewed a group of multi-millionaires and asked them the most important job they ever had. Forty percent of those people said sales," Lee recalls. "When you do sales, they said, you learn how to pick up the phone and call, and you get comfortable hearing 'no.' The smartest people out there, more often than not, have never really had a failure. Their biggest challenge comes in adjusting to being wrong when they've never been wrong. It stops these very smart people from trying to go out and start something.

"Think about Google. Their business model is selling ads, an immense number of ads. Of those ads, a fraction of a percentage lead to success, but they've still built an immensely successful business," Lee says. "Transfer that to the salesperson. A salesperson knows that if they make 100 calls, they may make a sale on two or three. So, they pick up the phone. If they do, and they get a 'no,' that's not a failure, that's just one of the 100. They keep going. On call 100, they make $500. Looking back, that means every call was worth $5. They run the numbers and look at the big picture."

In entrepreneurism, the stories that seem to be highlighted most are those about the phenom and the overnight success, which is more the anomaly. The reality is the path of an entrepreneur looks more like switchbacks up a hill, moving sideways or backwards. That climb is made of small steps, large steps and steep steps, which build gradually to a positive outcome. Sometimes the steps are so small that progress may feel non-existent or perhaps like backsliding. Seasoned entrepreneurs will often say that steady perseverance is the only way to reach the summit. They also note that leaders become comfortable dealing with challenges the more challenges they encounter.

"My father taught me a lesson about failure early in my career," says Haig Farris of Fractal Capital. "My father was a lawyer, and at one time he was acting for a company building a big natural gas project in British Columbia. His job was to go through hearings and get permissions from every municipality in the province. My dad said that whenever they got a 'no,' he'd call his client (a big-time CEO and a hell of an entrepreneur). He would have his talk prepared, like 'We lost this battle, these are their reasons.' My father would get a call back from his client, whose response was always 'This is the best thing to happen, here's what we're going to do.' This CEO always had a plan to move forward. The skill set with failure is learning how to turn it into an opportunity."

"Never give up," says Terry Matthews of Mitel and Newbridge Networks. "It doesn't matter how bad things are, you never give up. I am the most persistent person you've ever met.

"Say you're running a tech business, and you're selling a product. You go out on tender for a contract, and you lose it. Do not lose contact with the person who did the buying. Often the product they thought they were getting doesn't come through or it doesn't work well enough, and then you're the first one they call. You can't let one early failure close off all possibilities for the future," Matthews says.

Any career path will have its ups and downs, the moments of glory along with the moments of upset. To stay on the entrepreneur's path requires dedication.

Commit to the journey

Brad Thompson began studying gene transfer technology in 1973. Over the past nearly 50 years, he has sat on boards and he founded, co-founded and helped grow more than 20 companies. His first was Synsorb Biotech. His longest-lasting one is Oncolytics Biotech, a Calgary-based company that is developing cancer-fighting artificial viruses.

Every field has its own unique challenges to face. In earlier chapters, biotechnology entrepreneurs note how the rigorous and lengthy journey from idea to product development to regulatory approvals can put strains on even the most promising companies.

Thompson has seen firsthand how committed biotech startup CEOs are to the journey. "You go into it, and despite there being zero evidence for what you're doing, you believe it will work. You have to."

"The first time you have a randomized clinical study not work, for whatever reason, I'd say 'soul-crushing' is the closest word I can think of to describe it. The next step is to dig into the data. The question then is why it didn't work."

An early notable example in Thompson's career was when his first company, Synsorb, was studying a potential drug treatment for a specific strain of E. coli, a toxic bacterium often found in raw or undercooked ground beef.

"When a child or elderly person gets infected, about 20 percent of cases become a crisis, and our aim was to reduce that to 10 percent. Our phase two study did that, and then we went to Argentina for phase three. At the time, Argentina had an unbelievably high level of the disease. Locally, one of the first traditional foods they wean babies off of breast milk with was raw hamburger. But at the same time, the crisis rate in their population wasn't anywhere near 20 percent, it was 4 percent."

The drug trial did not achieve the results Thompson had hoped for originally. But examining the reasons why, and the differences between how Argentina treated their patients to account for the large difference in critical cases, led to its own breakthrough.

"What we discovered was that in Argentina, every kid who was treated for this infection was given the same hydration therapy as cholera patients, an IV drip with saline. And it turns out that was highly beneficial. But our study was a failure, and there was no way we'd get money again. Infectious disease trials cost thousands of dollars per patient, and we'd already spent $50 million. No one will give money to repeat a study that failed.

"The product development cycle failed, but we came out with a new standard of care for patients. Hydration is the new standard, and simply putting on an IV bag reduces the rate of critical illness from 20 percent to 4."

Though the trial did not produce conclusive results for the original study, the work of Thompson and his team is saving lives and the extended outcomes spun out in a wide variety of ways.

"An oil company bought us and soon we got a call from a venture firm in California asking if our tech was available. They bought it, and then a big company ended up with it where they developed it into something to fight C. difficile, major infectious bacteria, in hospitals."

When companies do not follow the expected trajectory to a successful outcome, it can be both confusing and disheartening. To move forward, leaders must be willing to take a discerning look at what went wrong, what factors may have led to an unexpected outcome and somehow find a way to move forward.

Synsorb itself was a success story born from leadership discernment and redirection. It's a story with which Brad Thompson was tangentially involved. Thompson had been a prominent figure at a number of biotech companies and has both experienced and seen other companies experience unexpected outcomes.

"There was a company in Edmonton doing sugar chemistry, and it really was some world-beating technology," Thompson says. But that company did not go out raising money and instead relied heavily on money from one source.

"Some companies get too much grant money, but full grants don't encourage self-reliance. The role of government should really be more programs like IRAP; partial grants help companies but also encourage you to be entrepreneurial," Thompson adds.

Eventually, funding stopped and the company folded. Thompson recalls having to fire 100 people when he walked through the front door saying, "I'm here to shut you down."

"The company was a great example of amazing technology and poor management. Dependency on doing things the easy way killed a great company. And the leftovers of that company, that no one wanted, are what we used to start Synsorb," Thompson says.

The cycle of build up, collapse and renewal is emblematic not just of biotech or more scientific innovation, but of entrepreneurism. Everything is built on what has come before it. For every success, there are many who came before blazing the trail. Sometimes the person or the company that performs the earlier stages of an innovation becomes the foundation for another to take it to the next level.

Thompson notes, "You love to see the technology work, but it bugs you until the day you die that it worked for somebody else. Part of the way that I cope is that I never let go. Yes, the C. difficile product, that someone else made based on our earlier work, is out there, but it's not perfect. There are side effects that impact the people who most need the drug, and I still work on those issues at one of the companies I run now."

"At Oncolytics, we got weird results eight years ago on a head-and-neck cancer phase three study, and nobody took it to fix it. It stayed with me in the back of my head, and then one morning I woke up with a revelation. Now I'm the one doing further work on the tech that failed.

"If something fails, I assume it should have worked. If it doesn't, that will always bug me. Or, not seeing the solution until eight years later bugs me," Thompson says. "To make it, you've got to suspend acknowledging that you're afraid of failure. In situations like that, flight is the normal human response. You want to run away from it. You've got to focus on the fight."

Figure out who is fit to lead for different phases

Leaders who are not afraid to confront difficult news and make hard choices are likely to survive and thrive. This has been expressed by many entrepreneurs, who underscore the importance of accepting accountability and making the hard decisions that must be made.

David Armstrong of IatroQuest shares his experience during his time as CEO.

"Our company started catching a lot of public media, got a million dollars from the CIA. Things were ramping up," Armstrong says. "When venture capital came in, I had to be assessed by an industrial psychologist to see how I fared against Fortune 500 CEOs. They asked questions about ethics, how I'd handle multiple crises at once, that sort of thing.

"I had a background in business by then, but I felt like it was time for our company to move to the next level. With my full support, we brought in a CEO with higher-level corporate experience in the diagnostics market.

"You have to realize as an entrepreneur when it's time to bring in another leader to take things to another level," Armstrong says. "The company might have started out as just yours, but it's like being a parent, the baby grows up eventually."

Armstrong recognized, as difficult a decision as it was, that stepping aside and giving up control of the company he started was the best decision for that company's future. He understands, as many great leaders do, that you must do what it takes to cross the finish line.

Alan Winter, former British Columbia Innovation Commissioner and CEO of MPR Teltech and Genome BC, has seen people and companies severely affected by not respecting the following two ideals: getting accurate information and using that information dispassionately.

"Only one or two out of 10 tech companies prosper. I learned early on in my career from one of my mentors that with tech startups, the successful ones in particular, the person who is CEO in the beginning transitions to become the CTO after about three to four years," Winter says. "They recognize that they need to bring in a CEO who understands how to deal with growing markets. It's an important stage of realization to go through as an entrepreneur.

"Or in unsuccessful companies, often the issue is that leadership, usually the CEO, doesn't have a feedback mechanism for important information. Companies can flounder, because they won't treat a problem like a problem because the CEO doesn't see it as one," Winter says. "As a mentor or investor these days, I always assess whether there is an environment in place with that kind of honest feedback channel, because without it, companies can come to a sticky end."

Reap the good from the bad times

"Everyone goes through ups and downs," says Alan Winter. "There can be real trials by fire, say with tech booms and busts, or with the 2008 recession, or even the COVID-19 pandemic. Those times put huge stresses on companies, but those that adapt and emerge out the other side come through stronger."

Peter Paulson is a lifelong entrepreneur who has experienced boom times and bust. Canada's National Energy Program spelled the end of one of his companies. Paulson has worked through ebbs and flows with all the companies he has founded.

"In the early 1970s, my brother won a British Commonwealth badminton tournament. About that time, I was finishing my postgrad work, and also working in some light manufacturing," Paulson says. "My brother asked if I could make badminton birds, because the principal factory that made them had a fire, and there was a shortage. I said sure, because how hard could it be?

"I set out to try and produce basic badminton birds, and actually got assistance from an IRAP-related program, and in a short while, I had contracts to create millions of birds," Paulson adds. "But then the other factory started up again, and even with a new contract with a reputable sporting goods company, we weren't making any money at it, so I flipped the switch and turned it off. We went on to something else. It happens.

"Between the 1970s and 1990s, we had a couple of other companies, we were in oil field production technology, helping find operational improvements. We created a lot of new products that helped save energy, but there wasn't a big appetite for them. We met with a local power supply company in southern Alberta, looking to install smaller, more efficient pump drives. The issue was they didn't want to save power, they wanted to sell power," Paulson says. "We had technology that saved energy, actually using 100 fewer megawatts in one oil field, so as it turned out that the company exported their excess power that wasn't used in Alberta. It was an excellent source of revenue. That was on us, our market research was poor, and it killed the idea."

Paulson explains that he always looked for ways to apply the work he had done on earlier projects to new ideas.

"You just transition as best you can. In 1993, there was a project where a company was building a high-rise in downtown Calgary, but it went bankrupt when it was just out of the ground. Big building projects like that use high-tension cables in their design that when left out in the weather can begin to fail, but it's invisible to the naked eye. We developed a technique to use acoustic sensors to monitor and see when the cables would fail. We took it from there and applied it to parking structures, other high-rises and grew slowly. Eventually, we realized we could use the tech that we developed and apply it to other structures, like bridges, water pipelines and wastewater lines. We moved from the building and infrastructure market to water and pipelines, which was where the real growth was.

"That company, Pure Technologies, grew until there were eventually 50 million shares, with shareholders all across Canada," Paulson says. "And when we exited, we sold control to Xylem, which paid over $500 million for it. That was surely the best success we had, but not without lots and lots of problems along the way."

Similarly, Jacqueline Shan of Cold-FX and PBG BioPharma clearly remembers what it felt like to hit stumbling blocks and how she worked around them.

"There were many times when we felt we had a great product, but maybe didn't have the expertise yet to do the marketing or sales when speaking to investors. When you're young, your confidence takes a hit, and you worry about the survival of your company, but you have to pick yourself up and keep going. You find a way.

"We decided we couldn't afford to keep knocking on doors that were just being shut on us, burning cash every month, so we just decided to do it ourselves," Shan says. "We commercialized and took our product to market rather than licencing and letting others do the sales and marketing. In the end, we proved quite successful doing that ourselves."

"When you're learning to sail a boat, the first thing you practise is how to knock your boat over and then right yourself," says Dave Krysko, co-founder of Club Penguin. "The exercise takes the fear out, because the worst thing you can do in that situation is panic. You do it over and over. It's the same in business.

"Personally, I've gotten over the fear, because life goes on. And as you go on, the fear diminishes over time, over the number of times, however big or small, you fail along your journey," Krysko says.

As these stories highlight, Canadian entrepreneurs will face challenges throughout their careers. What will set them apart, regardless of their industry, is their ability to meet those challenges as they arise and course correct as needed. From time to time, innovators and entrepreneurs must give themselves licence to fail, provided they learn from those experiences. Often, they will apply those learnings to future ventures or pivot an existing product toward a better-suited market.

Learning as they go will take them far. To go further, entrepreneurs need persistence and must stay motivated. Even when setbacks happen, successful entrepreneurs muster the courage to push onward and make tough choices. Their flexibility and adaptability help them overcome adversity. Challenges can be wake-up calls and learning opportunities for them, but they are not showstoppers.

Canadian entrepreneurs get back up again, stronger than before. Many will repeat this until their startup has grown to the point that someone with different skill sets might step up to run it. After seeing their startup get past adversity to success, entrepreneurs may pass the reins to a different leader, freeing themselves to rise to new challenges, explore other ways to innovate and set off on more entrepreneurial journeys.

CHAPTER 7

FEAR

Pursuing opportunities, new ventures, expansions and success itself can be unnerving at times. As such, fear is a common theme in the stories and experiences in this book's chapters.

From a young age, people learn to be scared of losing in sports and in school. Too often, those fears carry over to adulthood and to business.

Entrepreneurs and innovators may be afraid of losing whatever they have put on the line for their business or innovation. Someone may be scared of competing with multinational companies or disappointing loved ones, scared to ask for money or deal with governments, scared to face adversity or individuals with more experience, or scared to take time off to reflect, recharge and prioritize.

And yet, successful individuals know that fear also serves a purpose. It helps sharpen awareness of their senses and flags where hazards may lie. Becoming aware of potential hazards lets someone reconsider a course of action or plan how to overcome whatever may be in their way.

No matter how successful individuals become, they are unlikely to reach a point where they are unafraid of anything. Industry-leading executives worry about staying relevant to their markets, retaining their top customers, being ahead of or keeping pace with the technology curve, and watching out for up-and-coming entrepreneurs or innovators with ideas that may enhance or threaten market share.

Since fear cannot be avoided entirely, then accepting that fear will be along for the ride is key to persevering and thriving as an innovator or entrepreneur. When facing a healthy dose of fear, there is value in knowing that they have industrial technology advisors (ITAs) at their side. Such trusted advisors at NRC IRAP can alleviate fears by providing cybersecurity, business and technical advice. They support innovation in artificial intelligence, clean tech and other emerging areas. They do not shy away from fears because taking risks and doing things differently have been part of NRC IRAP's evolution and success over its 75 years of supporting Canadian innovation.

The best approach is to make a wary ally of fear and understand its usefulness, while also seeking support from others who have already been down similar paths or who pushed the boundaries of technical innovation and entrepreneurship.

Even with fear as a constant in an entrepreneurial career, there is no reason for fear to rule over an entrepreneurs' plans or drive their attitude. Through mentorship and their network of support, ITAs and other peers can guide entrepreneurs to accept the presence of fear and move past it.

Understand and disarm fear

It can help to explore and appreciate what is at the heart of fear's character and what drives it.

Fear is similar to a lone predator: clever but limited. First, it seeks to isolate and drive its prey away from any shelter or protection others offer. In an entrepreneurial setting, fear can form an obstacle between entrepreneurs and people within their professional and personal networks who could support and nurture them.

This happens when fear causes individuals to focus inwardly, into their own thoughts and feelings, cutting off inroads for helpful advice or cautionary words. For most predators, success depends on separating the prey from their pack.

Similarly, if fear makes individuals cut themselves off from others, then that wedge can lead to delayed, rushed or weak decisions. When isolated, people are more easily influenced by frightened inner voices that urge them to give up or make choices without proper consideration.

Fear cannot actually do anything to harm entrepreneurs and innovators unless they let it. While fear can seem to be in the driver's seat, it is helpless unless given power. To deny fear any power requires people to disarm it by seeking mentorship and support, and simply building relationships.

Asking for advice and feeling supported are natural antidotes to fear. Entrepreneurs and innovators who have mentors around them, who have been through the same trials, can hear how to overcome whatever is in their way. A mentor can also convince them they are capable of overcoming any obstacles.

Friends, peers or family who want the best for the entrepreneurs in their circle can also help shoulder some of the burden that comes with running a business. They can also make obstacles seem less intimidating whenever fear presents something as impassable. Dave Krysko, co-founder of Club Penguin, experienced that feeling of support during his company's quick rise to success.

"Fear is always there," Krysko says. "There's no way to get rid of it, the trick is in how you process it. Our advantage was that we had the three of us, Lane, Lance and me. And we were in a close relationship where I had huge amounts of faith in each of them. Having the three of us together offset the fear we were feeling, instead of trying to carry it all by yourself."

Having these fundamental supports in place makes it easier to confront and move past any frightening situations. It helps to know that the supports will still be there, no matter the result.

"My grandfather always used to say something to me when I was a kid and I was worrying about going and doing some kind of scary thing," says Darcy Amendt, founder of Arctic Spas. "Maybe I was thinking of going on some horseback adventure or doing something my mom might not have fully approved of. He'd say: 'What are you afraid of? They can't take away your birthday.' The things that matter will always be there, so that's how I've lived my life. Since then, I've never had much fear. I'm always leading the adventure, making my friends hitchhike through Africa, things like that. Fear isn't on my list."

Once entrepreneurs teach themselves to approach their career by accepting that frightening times are part of the cost of doing business, they will find themselves much more confident to take on whatever comes their way.

Find or build safe harbours

For those who achieve success, an overriding goal is often to create shelters and resources to help those who come after them. Entrepreneurs like Michelle Laflamme and Lane Merrifield already shared how they started initiatives to support and nurture new entrepreneurs, such as PME MTL and Accelerate Okanagan.

It is also important to build up safe environments within a company itself to help fight off the very natural fears that could come in the course of everyday business. This is especially true when times get tough like during a merger, an economic downturn or a change in leadership.

Terry Matthews of Mitel and Newbridge believes in the importance of allowing and even encouraging people to ask tough questions.

"I sometimes play a few tricks to keep people confident and comfortable," Matthews says. "There might be some challenging times, and everyone knows they're going on, but no one wants to be the one to say something, or to ask a question. So, I like to encourage people, even push them, to ask difficult questions. You might be in an all-employee meeting, and someone steps up and says, 'I thought we were going to win that big, new contract last quarter. What happened?' That takes guts to stand up and ask a tough question like that, about something that didn't turn out, so I make sure to immediately thank them and even go further. A bit of larger recognition, a small gift, anything. You reinforce a positive and difficult action, and it builds relationships and encourages communications with your people at all levels. If you engage with people, they feel good, they aren't afraid, and they work their butts off."

Open lines of communication can work wonders in an internal company culture. They help reduce fear levels. Open communication can also reflect the role that mentorship plays in external relationships. Experienced, successful entrepreneurs who pass down their accumulated wisdom find that process to be one of the most important and generous acts they can perform for the next generation. And for aspiring founders and innovators, hearing from their predecessors is often a valuable learning experience.

Haig Farris of Fractal Capital sees this part of the twilight of his career as paramount. During an interview at 82 years of age, Farris said he is busier than at any other time in his life. He keeps busy because he relishes opportunities to meet with and mentor new entrepreneurs.

"Mentoring young people is important and it's also a lot of fun," Farris says. "There are so many bright young people out there searching their way through a complex world. It's really important that previous generations pass down their expertise and what they've learned to the next one. It creates a linkage that endures. It's something that has happened in the arts for centuries as great composers, violinists or pianists teach the next generation, but it hasn't really happened in business.

"Doing this sort of mentoring produces some really interesting networks and future capabilities for new business opportunities. For instance, I mentored someone 10 years ago who contacted me recently about an investment opportunity," Farris adds. "I also believe we have a cultural commitment to pass down what we know. Anyone who makes a lot of money has to make sure they don't forget how they got there, and they better make sure some money goes back to the people and institutions who helped them along the way."

For Farris, the notion of mentorship is important. It reflects the long-standing purpose of apprenticeship and guilds in trades. These institutions and traditions not only uphold and celebrate skilled trades, but they also sustain and ensure succession for those who practice them. While large, established companies often put resources into succession planning, the idea of mentorship and succession is also vital for entrepreneurism.

Regardless of whether someone is at the mentor or mentee stage of their career, building these types of relationships ensures that fear lasts for a shorter time.

The only way out is through

Entrepreneurs and innovators learn that everything new and unique they want to bring to the world lies on the other side of fear. Beyond their fear of rejection might lie acceptance of their new ideas. Past their fear of loss or defeat might reside their business success staking its place in a competitive market. Anxiety about potential disappointments or defeats is but one side with personal validation as an innovator and leader beckoning from the other side.

It takes action to surmount these challenges and cross the divide between where someone starts and where they want to go. Most entrepreneurs who have ever experienced success have acted in spite of fears they felt. After taking action, they reaped the rewards.

Some entrepreneurs may not feel fearful at the outset of their journey, but instead fears are revealed or develop over time, once different challenges arise. Jacqueline Shan of Cold-FX and PBG BioPharma found her outlook evolved.

"In the beginning, I didn't fear anything," Shan says. "But over the first five years, I began to see what there was to be concerned about. I found that what I feared most was the unknown. And being in business as a scientist presented a lot of unknown factors. Responsibilities accrue over time. You have other people in your company depending on you or you're taking financial risks not only for yourself but also for investors and for your company. Then your company grows and there's fear for your reputation. All of those risks can be scary, and they can have a negative impact on your own life.

"The key is to get great advisors, find a board that supports you and helps mitigate risk, and broaden your network of people who have gone through all this before," Shan says. "You need to find balance. In being entrepreneurial, the buck often stops at you. You're the decision-maker. You can feel isolated and lonely. You fear that you've run out of options. That's not healthy. You need to keep mentally and physically healthy, with a support system from businesspeople, peers, family and friends surrounding you."

Knowing that others have your back is most important when competing with companies that operate at a level your company has yet to dream of, let alone face. Dave Shea, Senior Vice-President of Engineering at Kraken Robotics, talks about how building a network of collaboration helps companies of any size to stand strong against even the biggest, scariest and most imposing rivals. Kraken builds autonomous underwater vehicles and is often competing for government and military contracts against some of the largest military equipment manufacturers on the planet.

"Collaboration is key within our offices, with our customers and even with other companies," Shea says. "There's no true monopoly in our industry, which is large in terms of scope but small in terms of players. I can count on one hand the other companies that do similar things to what we do in synthetic aperture sonar (SAS) technology."

Shea says a significant portion of Kraken's revenue comes from that SAS technology. By comparison, the company's SAS revenue might seem like nothing more than "a rounding error" on the balance sheets of major competitors with deep pockets and broad revenue sources. Understandably, he finds that intimidating sometimes.

"So, to bid on a contract for a Danish company, we needed to partner with another company that could provide the assets that we couldn't. Our tech stacks up against any in the world, and we can go head-to-head against any of the biggest competitors on those terms, but if you go at it alone at that scale, it can be scary," Shea says.

"That's why we partner, either with other companies, or with a group like IRAP, which provides not only funding but also resources. They can provide input into business plans and into the technological side. With the recent work we did developing our SAS tech, it was our IRAP ITA who came in and solved one of the technical connectivity issues we were having, because that happened to be an area of his expertise," Shea adds. "And the financial support is invaluable too. When an organization like IRAP comes in and makes an investment, it can't zero out the fear or the risk, but it increases your confidence, reduces your fear and helps you get to where you're going faster."

Despite these added supports and confidence, co-existing with fear is a given in business. Earl McLaren of MSP Starch Products Inc. believes that even in the presence of fear, there is still an important role for the spirit and intuition of the entrepreneur.

"It goes back to, how does your gut feel?" McLaren says. "You have to have the ability to sleep at night when you're taking risks and knowing your tolerance for risk. You need to keep learning and talking with people along the way, but you'll always be arriving at a different point on a different day to take the next step. It's just important that you don't go out with only one piece of the puzzle and hope you can find the other nine. You do everything you can to be sure you're going out with nine pieces and only looking for that last one."

One of the scariest things can be to take steps, without knowing what might happen down the road. Even if an outcome is scary and uncertain, the best anyone can do, as McLaren says, is to know that they have gathered all the information and support they can pull together to strengthen themselves before they take that step. There are no guarantees, but planning a next "best" step means doing the homework or everything that is possible in that moment.

Finding the confidence to live with fear

When people express their concerns, it can be tough for an entrepreneur to stay calm and limit the influence of fears. No doubt, making the leap to entrepreneurism is a decision with potentially major repercussions. Those repercussions extend beyond the lives of entrepreneurs or innovators and can affect the lives of those around them.

"Everyone was nervous about how I would support myself, even though I was getting positive feedback and feeling very filled up and joyous about what I was doing for the first time in my life," says Amanda Rhyno, founder of Nourished Magnesium.

It can also be hard to keep business fears separate from one's personal life, especially if reminders crop up unexpectedly.

"Early on, a few months after starting the company, we were out at a hockey game in our small, close-knit community," says Wade Barnes, co-founder of agritech firm Farmer's Edge. "One of the farmers who knew me and my family my whole life said to my dad, 'We did that stuff he's doing years ago and it didn't work.' My dad got concerned and asked me if I really wanted to do this.

"It was tough. As I went and met with those growers in our community, I had to convince them we had solutions for the things that didn't work before. Many of those same farmers are now extremely active customers and their families are customers. You need to strive to bring people back around when something doesn't work and they were burned the first time. It's all part of building relationships," Barnes says. "It's intimidating and scary when people believe something won't work, but there's also nothing more gratifying than to bring back on board people who were turned off by an experience, and then to build off of it. It builds even more confidence. Others see it and say, 'Well, if they're back in, this must really be something.' Indeed."

Barnes adds, "When you get bucked off, you need to brush yourself off and get back to it again. It's not easy for everyone. If you don't have the tenacity to do that, then entrepreneurship isn't the lifestyle for you."

That attitude comes up often. Some people are naturally determined and others learn to cultivate determination, even if they were less persistent in the beginning. Michelle Laflamme of EMOVI draws on her own strengths to push past her fears.

"Fear doesn't last long for me. When I started EMOVI, I was so convinced what I was doing was right, but I would occasionally get a voice from inside asking, 'Are you doing the right thing?' I didn't listen to those fears, because if you pay attention to them, they can paralyze you," Laflamme says. "To succeed as an entrepreneur, you have to trust yourself. Even if you don't know all the answers, you have to be guided by your vision, determination and conviction that you are on the right path. You have to believe and persevere no matter which obstacles have presented themselves along the way.

"It's right there in our company name: emotion, movement and vision [e-mo-vi]. You let go and put aside the fear, keep going and stick to your vision. There are always going to be difficult emotions you experience, so even in the face of fear, you learn to stay the course, know that this is all part of how you advance, learn and grow."

Entrepreneurs and innovators can make fear a tool like any other in their business toolkit. Factoring in elements of a fear can lead innovative individuals to study options with caution and then act by deciding what is right for them and their goals.

"My first accountant gave me advice that his father gave him: 'Be scared. Make decisions scared. You'll double and triple think what you're going to do,'" says Dan Provost of RAD Torque. "Think broad and think bigger, and don't be afraid to be scared. Think about the ramifications of everything you're doing.

"Be strong and be scared. But don't hide behind a rock. Be driven, motivated and know what you want to do. I'm just a salesman who didn't know how to say 'no,' but I've always been driven by what I believed in. I didn't let the fear I felt slow me down. This journey hasn't been easy, but it's sure been fun," Provost says.

Being scared can be fun at times. There is a reason that horror movies endure, and new ones continue to be produced about zombies, vampires, monsters and other scary beings. Humans enjoy having our emotions heightened a little bit and feeling the rush of a heart-pounding experience. But it is also true that the experience of a scary movie is enriched by seeing it with company. When in a room full of people going through similar emotions, it feels less weighty, isolating or scary. It is almost comforting to have that common experience compared to the heightened terror of viewing such movies alone.

Being an entrepreneur is similar in many ways. Going through it solo might cause some people to freeze when they are scared, but it might motivate others to lean on or draw from other capable people. Facing fears together can actually buoy someone's entrepreneurial spirit.

The people whose stories are featured in these pages willingly shared their experiences of fear. Each of them spoke out because they recognized that they are part of a community, either in their field or in the broader world of entrepreneurship. They feel connected to other aspiring entrepreneurs and innovators, people who may want to step out of a traditional career path and take a risk. Seasoned entrepreneurs were once just someone who dared to do something scary, that is, someone who had a dream that they needed to make a reality.

By sharing their experiences, the storytellers in this book show other people that they are not alone. They are part of a group of experienced, dedicated people, even if they have yet to meet them. And they told their stories to help others understand that even when fear tries to cut them off or push aside their dreams, there will always be someone who can help show them ways past those fears.

Through NRC IRAP's service and program offerings, there are many people equipped to help entrepreneurs and innovators. NRC IRAP has evolved to meet those groups' needs and push past their fears to safe harbours so that Canadian small and medium-sized businesses can bring never-before-seen products to market. Entrepreneurs, innovators, their teams, clients, investors and partners alike may harbour fears of the unknown and of a venture's potential risks. All the more reason to face those fears together and keep the lines of communication open, both across and within professional and personal networks.

CONCLUSION

Taking an innovation from a mere idea to a lucrative business, or from a laboratory out to commercial markets, is not a path everyone wants to take. After all, careers are available in traditional and modern industries, in academia, in the not-for-profit sector and in government. But for those who want to build something from the ground up, it takes vision to look around at what exists today, question what is next and what could be better, and then pursue answers to those questions.

Never having started a company before is no reason to shy away from seeing a vision through to its potential. As Terry Matthews of Mitel and Newbridge Networks says, "In life, timing is everything." The timing might be right, right now.

With so many small and medium-sized businesses throughout Canada, this book could only give readers a taste of what entrepreneurial journeys can involve. The chapters were organized to cover common areas of concern like risk, competition, hard work, time, money, adversity and fear. This book sheds light on how people come to terms with those concerns and turn them to their advantage.

How NRC IRAP contributes

NRC IRAP itself fosters and encourages innovation by working right alongside Canadian clients, both businesses and individuals. NRC IRAP employees deliver a comprehensive suite of technical and business innovation services, and funding support.

Canadian entrepreneurs and innovators often equate NRC IRAP's name with valued government services. That positive reputation extends globally, according to Tom Jenkins, founder of Canada's largest software company, OpenText Corporation, and chair of its board of directors.

"Let's not take the IRAP program for granted. It's a wonderful jewel that our country has," Jenkins says. "I've travelled the world and had country leader after country leader ask me, 'What's the secret of IRAP? Why does Canada develop so many startups per GDP [gross domestic product] compared to other countries?' We really shoot the lights out and IRAP is at the heart of it."

And Jenkins would know. In addition to his impressive professional biography, he was appointed an Officer of the Order of Canada for what he has done for innovation and education in this country.

Many businesses grow and thrive with the skilled guidance and financial assistance that NRC IRAP provides from its combined strength of established industry experts and nationwide reach.

Over the past 75 years, NRC IRAP has been progressive and increasingly inclusive by making diversity a priority. Supporting diversity in innovation is a priority for NRC IRAP.

When Arlene Dickinson joined CBC's *Dragons' Den*, she was the only woman alongside four white men. She has seen firsthand the gradual change happening in Canada as people commit to looking to different communities for successors on leadership teams and boards of directors.

"It's great to see initiatives like BlackNorth, and seeing corporations committed to supporting and elevating diverse entrepreneurs," Dickinson says. "It's a critical first step and a visible signature of commitment to ensure that entrepreneurs from all backgrounds are funded and elevated. It reminds me of the female entrepreneur scene 20 years ago. Women were out there, but the visibility just wasn't being put on those women building big businesses."

Evolution

Just as priorities, technologies, people and companies change over time, NRC IRAP has evolved too. NRC IRAP has added new services of relevance to today's needs. These include providing cybersecurity briefings and related in-depth services, assisting clients with intellectual property, managing Canada's participation in initiatives like Eureka for international collaboration and co-innovation, delivering federal wage subsidy funding and services during the COVID-19 pandemic and its aftermath, and furthering the breaking down of boundaries between environmental impact and economic growth.

NRC IRAP is delivering its core services to more small and medium-sized businesses than ever before and investing in emerging technologies. NRC's 2021–2022 annual report notes that NRC IRAP served 9,078 client firms. The average compound annual growth rate for client firms between 2018 and 2020 was 32% for revenues and 18% for employment. That reflects NRC IRAP employees' ability to assess and identify firms with high-growth potential.

Drawing on a team can be as easy as tapping into NRC IRAP and Canada's broader innovation landscape, which is ready to support, guide and connect entrepreneurs and innovators.

Nobody should feel alone on their journey of entrepreneurship. Terry Matthews encourages anyone with an entrepreneurial dream to call on the top three things they need behind them for success: "Team, team and team."

Even though the stories shared in this book cannot represent every innovative Canadian, this is a sampling of the drive and ingenuity found within this country's shores. The chosen stories relate to NRC IRAP clients, collaborators and partners. The lessons, experiences and entrepreneurial advice within each chapter show it is possible to succeed, even when faced with uncertainties, challenges or skeptics.

Ideas emerge daily from every part of Canada. Maybe barely formed ideas are buried in the back of someone's mind in the Yukon, sitting in a file on a laptop computer in a farmhouse in Saskatchewan, stored in a smartphone of a newcomer in Quebec or scribbled in someone's notebook in Nunavut. It is time to seek out those ideas.

Collectively, there is enough ingenuity to fully explore their potential. Not every idea will be a winner, but only by digging out those ideas and then fleshing them out will Canada find the ones that could transform and solve major challenges. Imagine that those ideas each help clear the way for everyone to have access to clean water, affordable and healthy food, housing, good-paying jobs, new ways to prevent and treat diseases, Internet and safe digital communications, sustainable sources of energy and true ways to address climate change, and the freedom to live, work and raise families in inclusive and diverse communities across the country.

When industries grow, the communities in which they are based prosper in many ways, serving Canadians across the country. So, when Canadians innovate, and entrepreneurs and businesses succeed, then everyone wins.

It takes more than one person and more than one idea, but together this nation and its innovation landscape can keep the entrepreneurial momentum going and innovate to find necessary solutions. And NRC IRAP will be there, staying true to its roots by being of value to small and medium-sized businesses, to entrepreneurs and to Canada.

Trailblazers recognize that value. "I can only imagine the economic impact that NRC IRAP has had over the past 75 years. It would be trillions and trillions of dollars," Arlene Dickinson says.

Here is to the next 75 years.

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