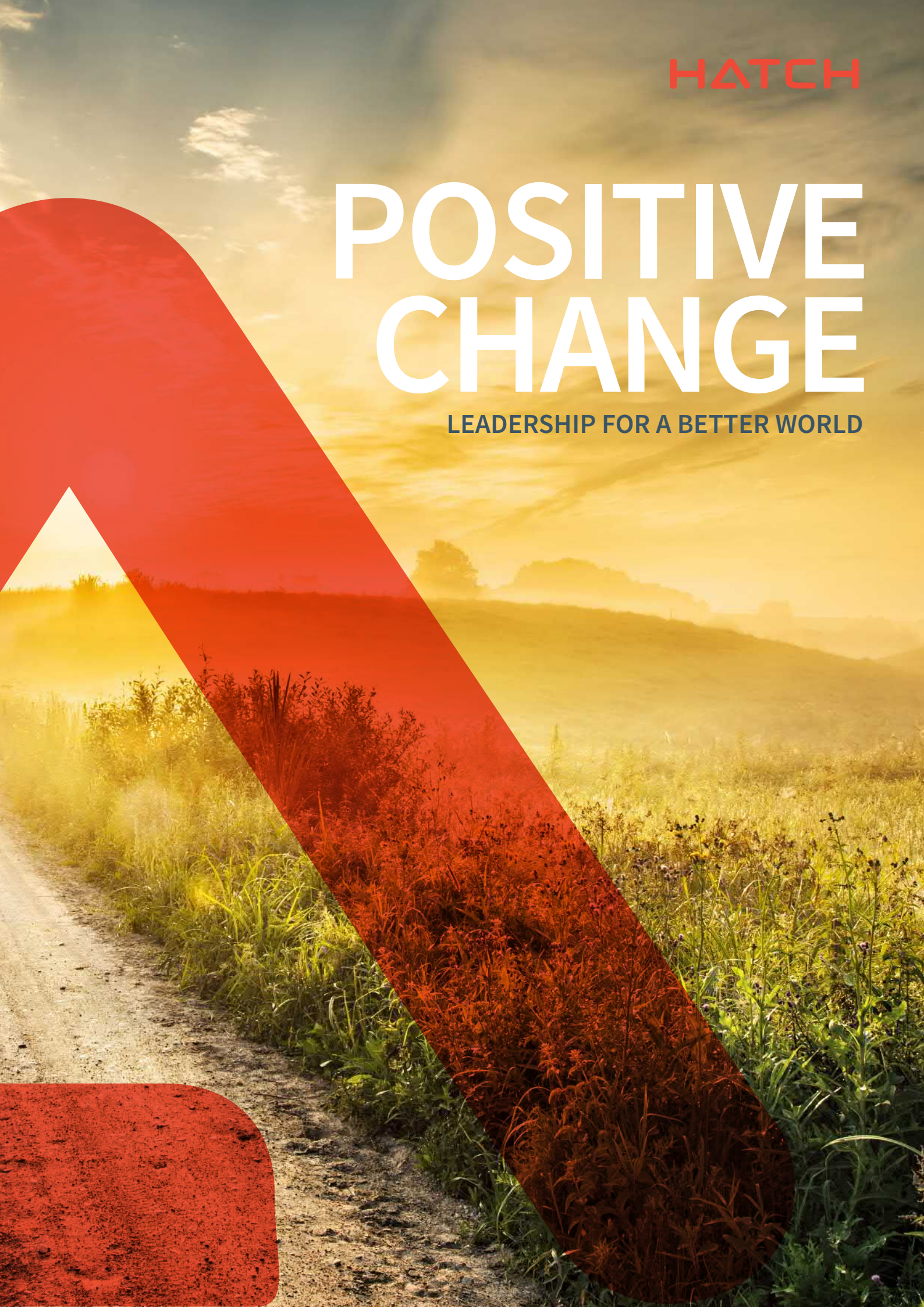

HATCH
POSITIVE CHANGE
LEADERSHIP FOR A BETTER WORLD

A message from our chairman and CEO

As we move forward with new ideas for innovation and a vision centered around positive change, we reflect on the past: the world has changed, our problems have changed, we have changed. Most recently, 2020 was a year largely shaped by the global COVID-19 pandemic. It forced us to pause and assess what is important, both personally and professionally. As we face the future, we take hold of the opportunity to determine what works, identify what doesn't, and change as required. Collectively, our energy must remain firmly focused on our Manifesto, the foundation of our organization, which has proven to be successful for more than six decades.

Five years ago, we marked a new era at Hatch—one defined by our ability to address the ever-changing needs of our clients and their respective businesses. We have seen our business grow to include important and innovative services and offerings in areas such as Advisory, Digital, Urban Solutions, and Diversity and Inclusion. As our clients reimagine their own strategies in response to current realities, we have a lot that we can offer to assist them: a focus on building stronger client relationships, improved governance, our new standalone Climate Change and Sustainability practice, and new capabilities brought in by our latest integrations.

As entrepreneurs with a technical soul, Hatch is uniquely positioned and obligated to tackle the toughest challenges facing our clients, and our world today. Some of the major themes occurring in our market sectors include the energy transformation towards renewable power and decarbonization, infrastructure development towards large, livable cities with sustainable resources, and a shift towards a new, digitized world. The climate change and sustainability solutions we identify in partnership with our clients will not only positively impact their businesses, but the communities and environments we all partake in.

Over the last sixty-five years we have pioneered, innovated, and raised the bar in the industries in which we work. The legacy of our organization has been forged by generations that have consistently met the challenge of navigating and excelling through transformation. We are all beneficiaries of that resilience and fortitude. Our history is a rear-view look that has allowed us to learn what we need to know and provided us with a comprehensive skillset that has paved our way during the last six decades. Together, we can look back with pride at a legacy of delivering for our clients. Our global team is poised to continue that legacy for each one of our clients and community partnerships. While we rely on our global network of 9,000 professionals to work on the world's toughest challenges, we look to our leaders for the definition, strategies, and actions of success. The perspectives featured herein are a sampling of our journey and our vision for what's to come.

One thing is certain: change is inevitable. But whatever the future may bring, I remain confident that we are ready to take on whatever the next few decades have in store—for us and our clients. We thank you for your support during the last sixty-five years and we look forward to serving you for another sixty-five, and beyond!

John Bianchini
Chairman and Chief Executive Officer

The world has changed

Tackling our toughest challenges

We are in an era of global transition. There is an overwhelming sense of urgency. Climate change and limited resources are driving us to act and invest in new ways. The clock is ticking and the timeline for meeting such challenges is fast-approaching. We need to raise our awareness and build for the future with our people, our planet, and effective investment in mind. The good news is, we can.

The future is now. Communities and industry experts will need to join forces and demonstrate the leadership that's required to build the world we want and can sustain.

Bold leadership will steer us into the future

Martin Doble

Martin is our global managing director of Strategy and Development. A member of Hatch's board of directors, Martin is responsible for Hatch's continued corporate development, including long-term corporate strategy. Throughout his career, Martin has led projects across the globe and with different cultures, which he credits with providing him with a unique perspective of the world and the critical skills to identify solutions that are not only strategic, but also sustainable.

The world in 1955, when Hatch was founded, was a very different place than it is today. The past sixty-five years have brought tremendous shifts to our way of life, especially for those in the developed world. We have grown used to a comfortable way of living that's defined by easy access to energy, clean drinking water, global communication, and so many other resources. The world has globalized and for many that means almost anything is at our fingertips. Today's pace of life and development would be inconceivable to past generations. Since the Industrial Revolution, our global economy has grown on the back of carbon energy and plentiful, easily accessed natural resources. These have allowed us to unlock human inventiveness in new ways; technology is arterial in our world today. But we know that this way of life is not sustainable forever. Resources are becoming increasingly limited, climate change is obliging us to transform how we power the world, and both are going to require us to become radically more efficient.

In parallel with this, the global population has grown significantly in the last sixty-five years and much of that population has moved to urban centers, creating new needs for logistics, housing, and key services such as health care and education. More than half of the world's population now live in cities and towns, compared to just over a third in 1955. That figure is expected to grow to two-thirds by 2050.[1] With this growth comes inevitable change. We are becoming highly specialized, our economies are becoming more sophisticated and service-oriented, and jobs look very different than they once did. That is driving communities to be shaped in new ways.

In addition to the cycles of change that we've witnessed throughout human history, about once every generation we have disruptors that alter the way we think about our societal norms and expectations, and about how we live as a world. This generation has two in particular: climate change and, more recently, a global pandemic. The long-term impacts of global crises aren't always immediately known. Arguably, however, they give the world a pause and challenge us to look again at our values and our expectations. They make us rethink the very basics of how our societies function and how we balance and manage risk with our need to build communities, to consume, and to have freedoms and basic rights. They also beg the question: how well prepared are we for other risks, such as climate change?

"Tackling the challenges of the future will require bold solutions that are innovative and challenge the status quo."

The future is now

A new and different era of progress is upon us. Climate change and limited resources are driving us to invest in new ways. The path to growth is less clear. Investors are being driven by the need to perform against increasingly complex expectations. Countries, cities, communities, and businesses need to be more sustainable. The timescale for meeting such challenges now looks much closer. We need to be smarter, serve our communities better, and build for the future with our people, our planet, and effective investment in mind. The good news is that we have the potential.

A positive future requires positive change. Hatch's mission is to help our clients design, build, and operate major assets in our industries and communities. The good news is we certainly see game-changing efficiencies already being implemented to make these assets fit the future that the world aspires to. Technology—physical, digital, and beyond—is transforming the ways we imagine and build assets and infrastructure.

But this requires bold leadership. Communities, industries, engineers, and advisors will need to come together and demonstrate the leadership that's required to build the world we want and can sustain. Tackling the challenges of the future will require solutions that are bold, innovative, and challenge the status quo.

In partnership with our clients, Hatch has led key advancements that have been transformative in our industries. We've developed and implemented innovations in the minerals sector, taking the industry on a journey to safety, productivity, efficiency, and now growing sustainability. Together, we've worked to diversify energy sources, from hydroelectric to wind and solar systems, making them commercially viable around the world at different scales. We have innovated and together led the use of alternative delivery methods for major infrastructure and transportation projects around the world, helping to build systems for the cities and industries of tomorrow.

We are in an era of global transition. Our world needs leaders, visionaries, and realists to create practical solutions that will bring a sustainable and resilient future to meet the aspirations of humankind. At Hatch, we are determined and committed to bring our leadership, ingenuity, energy, and strong values to work to achieve positive change together.

Source:

[1] "Which cities have grown the most since 1955?", World Economic Forum, accessed November 2020, https://www.weforum.org/agenda/2015/08/which-cities-were-the-worlds-largest-in-1955-and-which-are-the-largest-now/

Transforming how we think about food

Mike Fedoroff

As Hatch's global director of Potash, Mike is based in Saskatchewan, Canada, home to some of the world's largest potash projects with clients such as BHP and Mosaic. With more than thirty years of project and operations experience, Mike has worked on potash projects around the world.

There are many things in life we take for granted, but food should not be one of them. As global populations continue to grow and are estimated to exceed nine billion by the year 2050, we need to answer the question of how the earth will provide enough food to feed us all.

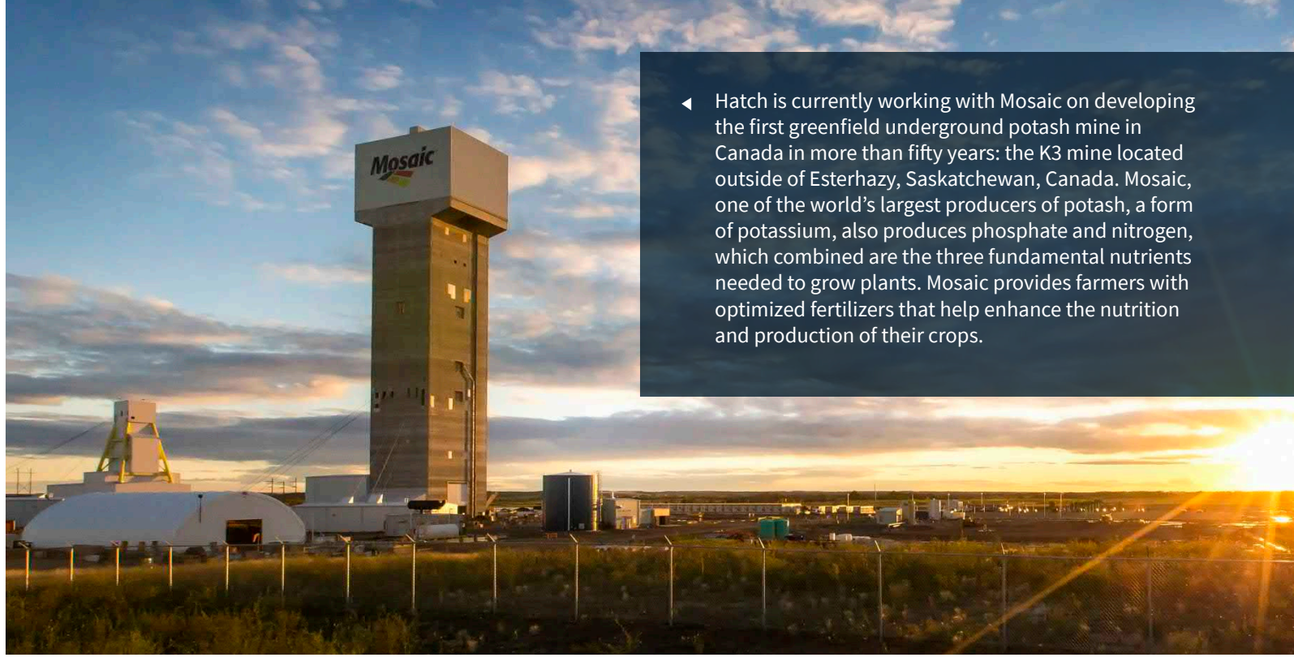
What is contributing to food accessibility issues?

Population growth is placing stress on arable farmland. Agriculture is considered the largest human use of land, covering approximately 38 percent of Earth's land surface, not including Greenland and Antarctica.[1] As our populations grow and there is a greater migration to urban locations, we are putting pressure on the available farmland—cultivated land that can sustain growing crops. It is projected that urbanization will cause the loss of between 1.6 million and 3.3 million hectares of prime agricultural land annually in the period between 2000 and 2030.[2] Unfortunately, creating more cultivated land mass often results in deforestation, which has an impact on our climate, so a more balanced and sustainable solution is required. We need to be more productive in using existing and new sources of agricultural land. Providing more cost-effective and sustainable production of fertilizers will be vital to the future well-being of the earth's population and food security.

Improvements in developing nations' eating habits. A better standard of living in developing and emerging economies has changed the type of food people desire. For instance, they tend to move away from eating predominantly vegetarian diets to receiving their protein source from meat products, especially red meats. But this example does not come without consequence, as meat-based products typically require more energy, land, and water resources compared to non-meat products. Subsequently, the production of some meat protein sources places additional strain on arable land usage and the reliance on fertilizers to grow grains will need to increase.

Climate change is affecting food production and distribution. Climate change is also playing a role in food accessibility, as increasingly extreme weather events such as droughts, heavy rainfall, and changes in regional climates put pressure on the production of crops. Climate change could create a shift in where different crops are growing around the world; however, this would arguably take decades. The reality is that to maintain food accessibility we will need to adapt to the changing climate. Fertilizers increase production (yields) substantially and can make crops more resilient to changes in climate.

To support the delivery of fertilizers, more resilient infrastructure must be constructed to withstand increasingly harsh weather conditions and the effects of climate change. This is vital to reducing potential disruptions in the delivery of fertilizers and other products, enabling the smooth operation of the supply chain, and consequently supporting the world's food security.



Hatch is currently working with Mosaic on developing the first greenfield underground potash mine in Canada in more than fifty years: the K3 mine located outside of Esterhazy, Saskatchewan, Canada. Mosaic, one of the world's largest producers of potash, a form of potassium, also produces phosphate and nitrogen, which combined are the three fundamental nutrients needed to grow plants. Mosaic provides farmers with optimized fertilizers that help enhance the nutrition and production of their crops.

Fertilizers will be key to meeting the world's food needs

It is estimated that agricultural productivity will have to increase by 70 percent to feed the growing population and that half of all food consumed today is only able to be grown because of fertilizers.[3] The minerals and fertilizer industries are focused on producing innovative fertilizers and sustainable ingredients that enhance crop production, while the broader supply chain must enhance the capacity and resiliency of infrastructure to support the uninterrupted distribution of those products.

Our clients in the fertilizer industry are focused on their ability to increase their capacity, extend the longevity of their operations, and develop processes to create multi-nutrient fertilizers that enhance the growth of specific types of plants and crops. Lately, we are seeing our clients become more focused on reducing their carbon footprint and use of water, supporting their long-term sustainability.

"As an all-natural product, and currently non-GMO, pea protein is poised to become a major contributor to food security."

Innovation rooted in plant-based products

In contrast to trends in developing nations, consumers in some developed countries are moving towards more plant-based diets, therefore making plant-based proteins thrive in a marketplace where people want healthier choices. As an all-natural product, and currently non-GMO, pea protein is poised to become a major contributor to food supply security. Not only is pea protein becoming more desired as a meat protein substitute, but also as an alternative to other non-meat protein sources, such as soya. We have seen the emergence of pea protein in products such as Beyond Meat®, as well as shifts in the demand for these products around the world.

Traditionally used for pea protein extract, the yellow pea grows exceptionally well in the southern regions of Saskatchewan and Manitoba in central Canada. Roquette is building the world's largest pea protein factory in Portage la Prairie, a small city in Manitoba, and Hatch is providing engineering procurement and construction management services to build the factory.

Sources:

[1,2] "Global Land Outlook", United Nations Convention to Combat Desertification, First Edition, 2017, https://knowledge.unccd.int/sites/default/files/2018-06/GLO%20English_Full_Report_rev1.pdf

[3] "About the fertilizer industry", The Fertilizer Institute, 2018, https://www.tfi.org/our-industry/state-of-industry/about-the-industry

Overcoming obstacles to find opportunities in climate change

Susan McGeachie

Susan is a renowned expert in climate finance. As Hatch's global director of Strategy & Policy, Climate Change and Sustainability, she supports clients with strategies to maximize positive social and environmental impacts of projects, investments, and other activities.

Climate change is one of the world's toughest problems. On one side is how the drivers of greenhouse gas (GHG) emission reductions—whether they're policy changes, technological advancements, or shifting access to capital—will affect our economic performance. The second is that, if these drivers aren't successful in delivering the required level of emission reductions, we're going to have increasingly erratic weather, which can also negatively affect the economy.

"To achieve the level of GHG reductions needed to avoid catastrophic change, decisive action must be taken now."

There is overwhelming global consensus among the scientific community that rising global temperatures are directly correlated with increasing GHG emissions in the atmosphere. While many countries have signed the *Paris Agreement*, committing to limit the global temperature increase to well below 2°C by 2050, and target 1.5°C, current action indicates that we won't be able to do enough to reverse the physical threat. We can therefore expect to see turbulent, unpredictable weather conditions wreaking havoc in our natural environment and built infrastructure. Delayed attempts to mitigate these events could lead to an abrupt shift away from high-GHG-emitting industries, with a significantly greater negative impact on the economy compared to a planned, gradual shift.

To achieve the level of GHG emission reductions needed to avoid catastrophic change, decisive action must be taken now. While we're seeing momentum on clean energy technologies, more is required to offset the needs of an expanding global economy and growing population.

"Globally, the demand for energy has grown significantly over the past five decades, influenced by technological advancements clearing the way for new sources of energy."[1]

Discovering renewable opportunities around the globe

The fight against climate change also presents exciting opportunities for development. Some developing countries are embracing the idea and leading the charge on clean energy technologies. The absence of legacy structures in many developing countries facilitates early adoption of newer, more innovative solutions, as demonstrated by Africa's global leadership in mobile payment systems. As the world's richest source of solar, with continent-wide estimates indicating more than 660,000 TWh of electricity potential per year, Africa is well-positioned to do the same for solar PV installation.[2]

Enhancing the environment through social values and collaboration

Corporations can play a crucial role in minimizing their carbon footprint and many are now considering the full value chain of that footprint, incorporating upstream and downstream activities into their strategies. They've taken steps to ensure their operating practices, products, and services offer the most value to consumers. But the business case for these positive changes still doesn't always make sense. Industry leaders have a responsibility to change that by coordinating with all market players, including governments, financiers, and their own industry peers. It can still be a challenge to finance low-carbon energy solutions, due to multiple complex barriers that no one entity can address alone, such as unsupportive policies and regulations. The industry has the will, but more needs to be done to support the way.

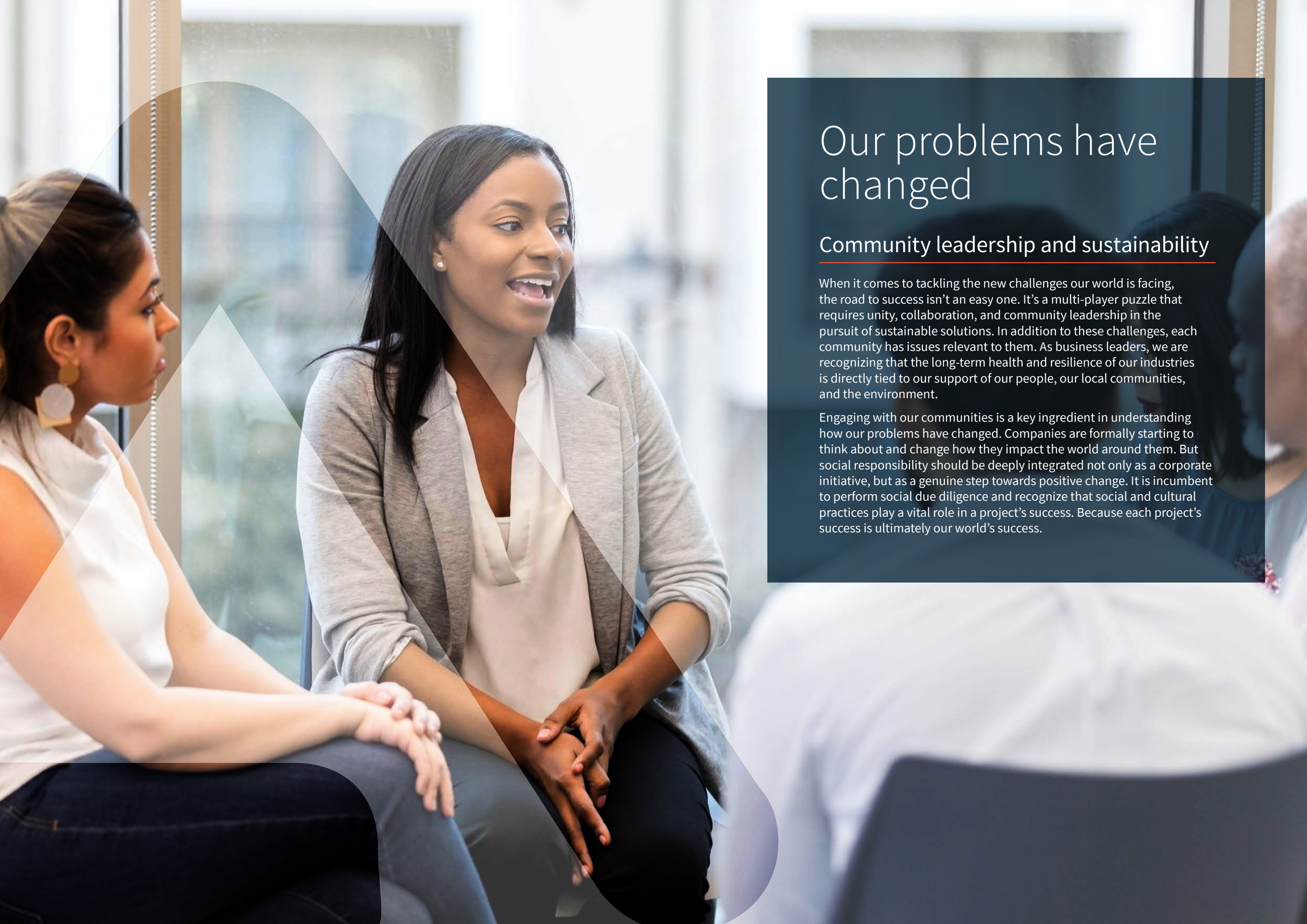
Trying to achieve the goal of lower emissions will inevitably result in a prolonged, difficult phase of transition for industries, governments, and communities. As a result, we're involved in collaborative initiatives across multiple sectors that address specific technical, environmental, social, and financial issues.

As an active participant in the United Nations' Sustainable Development Goals—seventeen goals related to, among other things, climate change and sustainability progress by 2030—we're aligning our projects to support advancing these goals. To achieve our global commitments, we'll need to collaborate more than ever before. Collectively, we can reach the intended milestones towards becoming a fully sustainable world by 2050.

Sources:

[1] Canada's Energy Transition: An Energy Market Assessment, National Energy Board, 2019.

[2] IEA (2019), Africa Energy Outlook 2019, https://www.iea.org/reports/africa-energy-outlook-2019.



Our problems have changed

Community leadership and sustainability

When it comes to tackling the new challenges our world is facing, the road to success isn't an easy one. It's a multi-player puzzle that requires unity, collaboration, and community leadership in the pursuit of sustainable solutions. In addition to these challenges, each community has issues relevant to them. As business leaders, we are recognizing that the long-term health and resilience of our industries is directly tied to our support of our people, our local communities, and the environment.

Engaging with our communities is a key ingredient in understanding how our problems have changed. Companies are formally starting to think about and change how they impact the world around them. But social responsibility should be deeply integrated not only as a corporate initiative, but as a genuine step towards positive change. It is incumbent to perform social due diligence and recognize that social and cultural practices play a vital role in a project's success. Because each project's success is ultimately our world's success.

Local community development is changing the future of our industries

Craig Simmer

Craig is the regional director of Infrastructure for Hatch's Africa, Europe, and Middle East region, based in Johannesburg, South Africa. Craig also leads Hatch's socioeconomic development efforts in South Africa, which have contributed to Hatch achieving a Level 1 Broad-Based Black Economic Empowerment rating for three years standing.

Companies are formally starting to think about and change how they impact the world around them. As business leaders we are recognizing that the long-term health of our industries is directly tied to our support of our people, local communities, and the environment. It's uniting in the pursuit of sustainable development that underlines our goal of positive change.

Corporate social responsibility is more than a marketing opportunity

We all know that we're meant to demonstrate a sense of corporate social responsibility when it comes to sustainability. This idea isn't new. But we're beginning to move beyond the perspective that it's simply because that's what people want to hear.

Companies that genuinely embrace and deeply integrate their corporate social responsibility initiatives do so because they understand that it not only benefits others, it has a significant positive impact on their bottom lines.

How community development shapes long-term business and market opportunities

Under the broad umbrella of sustainability, local community development is one of the most valuable investments companies can make for the long-term health and success of their businesses and the markets in which they operate. There is perhaps no better place to observe this than in South Africa.

The power of legislation and formalized corporate programs

Historically, the metals, mining, and infrastructure sectors in South Africa have been slow to respond to calls for better corporate citizenship. More recently, both legislation and big corporate mishaps have jolted companies awake to the realities of the negative financial impacts of not taking social responsibility seriously.

The South African government has established the Broad-Based Black Economic Empowerment (B-BBEE) program to redress economic imbalances created during the apartheid era that concentrated prosperity into a narrow majority while disadvantaging many populations across the country. This legislation has led to the formalization of many corporate programs to invest in and support the development of local black- and minority-owned businesses. Beyond the local benefits, the B-BBEE program is repositioning South Africa's competitiveness on the world economic stage.

Bridging the gaps for underserved communities

Many of the world's mine sites, plants, and industrial operations are located in or tied to remote or rural areas where community development often requires starting from the most basic foundations.

Such community development projects have a positive impact as local communities are given the tools to elevate their own prosperity. They also provide community members with opportunities to access education, participate in the country's economy, and establish a new standard of living for generations to come.

Lessons for the rest of the world

Our project teams are taking lessons learned from South Africa's approach and applying them to the way we do business globally. The benefits of local community development are widely applicable for business leaders around the world.

Through enterprise and supplier development programs that support local minority-owned businesses, we have nurtured better partnerships and built stronger supply chains.

Legislating such programs brings rigor to these initiatives by mandating the establishment of formal processes that measure impacts and compare results against original objectives. The measurable benefit of community development is the hard evidence of its far-reaching impact.

Community development initiatives constitute some of the longer-term investments companies can make for their future business success. From building critical infrastructure in underserved communities to supporting youth and STEM education programs, we've witnessed the power of early-stage interventions in shaping more robust and prosperous communities.

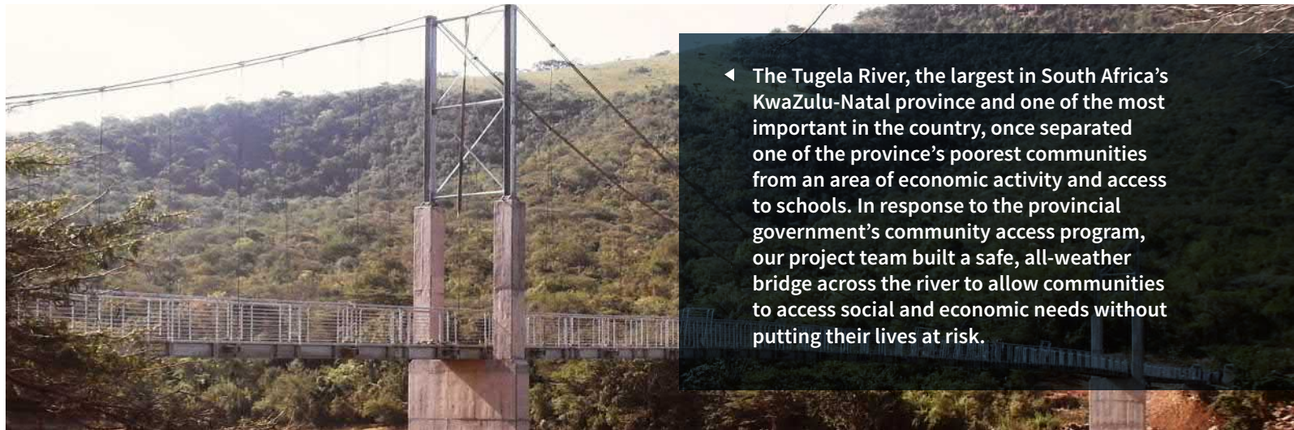
Socioeconomically stable and better educated citizens create larger, more diverse talent pools and greater participation in the economy. For increasingly globalized industries, the ability to be competitive with other nations is fundamental for establishing a successful, sustainable future.

Interrupting the business-as-usual mentality

It's almost impossible to say what the world will look like in another fifty years. What we do know is that we need to adapt. We need to adopt sustainable practices.

We know that we all have a better vision for what the world could look like if we choose to act with purpose. We have the tools and the opportunity to reduce socioeconomic inequality, provide better access to basic needs, and uplift our people and our planet. The evidence is on the table: it's good for the world and it's good for business.

"Socioeconomically stable and better educated citizens create larger, more diverse talent pools and greater participation in the economy. For increasingly globalized industries, the ability to be competitive with other nations is fundamental for establishing a successful, sustainable future."



The Tugela River, the largest in South Africa's KwaZulu-Natal province and one of the most important in the country, once separated one of the province's poorest communities from an area of economic activity and access to schools. In response to the provincial government's community access program, our project team built a safe, all-weather bridge across the river to allow communities to access social and economic needs without putting their lives at risk.

More than a checklist

The role of meaningful community engagement

Chelsie Klassen

Chelsie is Hatch's global director, Community Engagement. With expertise in Indigenous collaboration, community engagement, issues management, and communications, Chelsie works to ensure that feedback from her stakeholders is considered in the development of major projects and that cultural traditions are respected and stakeholder impacts are mitigated or minimized.

There's increased interest and a rising trend of businesses starting to prioritize environmental, social, and governance (ESG) issues around the globe. Companies involved in the metals and mining, energy, and infrastructure industries in particular have the potential to improve environmental risk, advance community development, and generate revenue in the areas in which they operate. More importantly, they have the social responsibility to do so.

The growth in interest is perhaps most evident in relation to climate and diversity, but there is a marked shift in the importance of sustainable business strategies and the impact on society. What was once looked upon as a philanthropic effort is now being recognized as a core component of a strong business model. The challenge is that environmental and governance measures are well articulated in the industry, while social measures—that is, a company's ability to manage their relationship with all stakeholders—remain harder to define.

The "S" in ESG

Risk and success factors for environmental and governance matters are not only quantifiable, there are resources for that evaluation, such as impact assessments and company audits. In contrast, there's no blueprint for examining the social component of ESG.

By definition, stakeholder engagement is the process by which an organization involves those who may be affected by the decisions it makes through a process of analysis, planning, communication, and implementation. But there's a difference between stakeholder engagement and meaningful stakeholder engagement and the consequent magnitude of responsible business conduct.

The business case

More than ever, investors are looking at ESG ratings as a risk reduction metric. Improving environmental and social risks can achieve better growth and cost savings, improve brand reputation, and perhaps most importantly, strengthen long-term stakeholder relations. Conversely, if a project comes up against any type of community confrontation or lack of support, it can significantly affect your delivery risk.

There have been projects that have garnered media attention and faced mass opposition, especially concerning Indigenous land and disputed territory. There have also been projects that have suffered financial loss due to a lack of community consent. Ultimately, investors want to know that they are putting their money into companies that know how to successfully govern and mitigate risk.

Above and beyond

We have seen the establishment of international frameworks that measure sustainable business efforts: the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability, the Paris Agreement on climate change efforts, the United Nations (UN) Declaration on the Rights of Indigenous Peoples, and the UN Sustainable Development Goals are a few examples. These international benchmarks all offer guidance for businesses to deliver and implement sustainability efforts into governance, operating structures, and beyond.

The catch? There's no blueprint for how to do it. When looking at these international standards, you must keep in mind that every community you encounter will be different. It's not as simple as taking a percentage of capital expenditure and putting it towards social acceptability programs. It's about proactively consulting communities and going beyond bare regulatory standards. It's about paying attention to what the stakeholder needs—each solution should be customized towards the respective community. It's a relatively small investment at the beginning that pays off big in the end.

"Engagement is not a checkbox. Perhaps we have grown accustomed to looking at regulations, but as we move forward into the future, we need to look at it as a relationship."

Together and towards success

Regulatory requirements often, if not always, include a community consultation process: What are people thinking? What do they care about? Are there any trigger points? What does the community really need? What's the best way to engage? How do community members want to provide feedback? The issue arises when a consultation activity is done but no action follows.

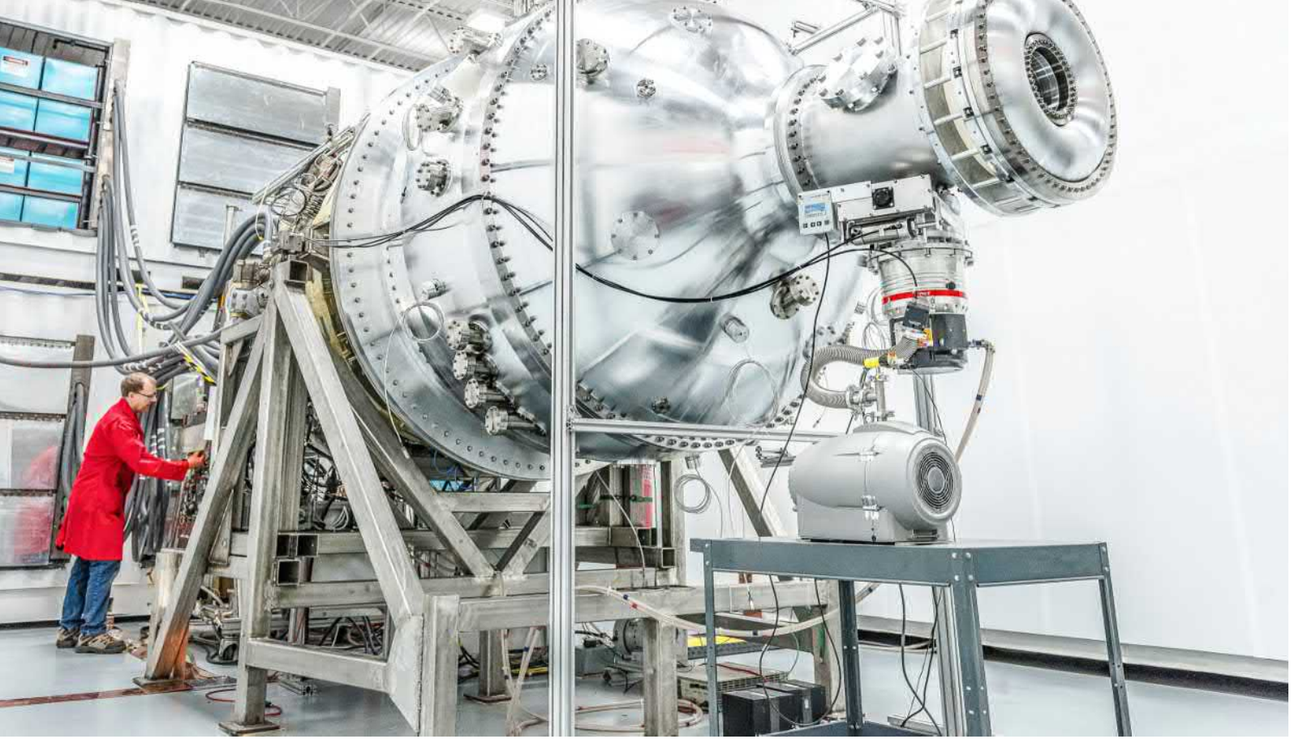
Engagement is not a checkbox. Perhaps we have grown accustomed to looking at regulations, but as we move forward into the future, we need to look at it as a relationship. The development of BC Hydro's Ruskin Dam is an excellent example of strengthening relationships with an Indigenous community. While upgrading the existing dam and powerhouse, BC Hydro discovered a 9,000 year-old archaeological site and immediately stopped construction to ask for the Indigenous community's input regarding next steps. Subsequently, the design of the planned right bank upgrades was revised to accommodate the site and allow it to remain intact according to the wish of the Kwantlen First Nation. The dam upgrades included the installation of six new steel artistic pier panels designed by a local Kwantlen artist that depict the Kwantlen people's history in the community.

Beyond social due diligence and cultivating relationships, it fundamentally comes down to three questions your business needs to ask and decisions your business needs to make: 1) Can you manage the project properly based on the resources and risk tolerance to do so? 2) Can you modify your project if need be? and 3) Can or should you move on if the risk is too high and the reward isn't there?

The way forward

While face-to-face interactions and spending time in the community have paved the way over the last sixty-five years, COVID-19 is certainly shifting how we interact within our communities and we'll have to find more creative approaches in the next era. Actions taken during and post this unprecedented time will redefine your organization, but it's imperative to nonetheless remain accountable to the social commitments that have been made pre- or during COVID-19, even if that means looking at a solution through a different lens.

While community engagement is an ever-evolving concept for which there is no blueprint, companies can leverage their experiences to ensure social engagement and commitment to the community are weaved throughout a project's entire life cycle. Attention and care in cultivating relationships will be the ultimate driver of success. Through respect, understanding, and cooperation, business leaders and stakeholders can build mutually beneficial socioeconomic partnerships, affecting positive change in the communities we live and work in.



Unlocking a sustainable energy mix with nuclear

Amar Jolly

Amar is the global director, Nuclear Power at Hatch. His expertise spans all facets of the nuclear industry, from the refurbishment and modification of existing facilities, development of emerging technologies, and innovative solutions.

Beyond overcoming a global pandemic, some of the major issues facing the world today include energy inequality, urbanization, and perhaps the biggest one—climate change. They all share one thing in common: a need for access to sustainable and reliable power.

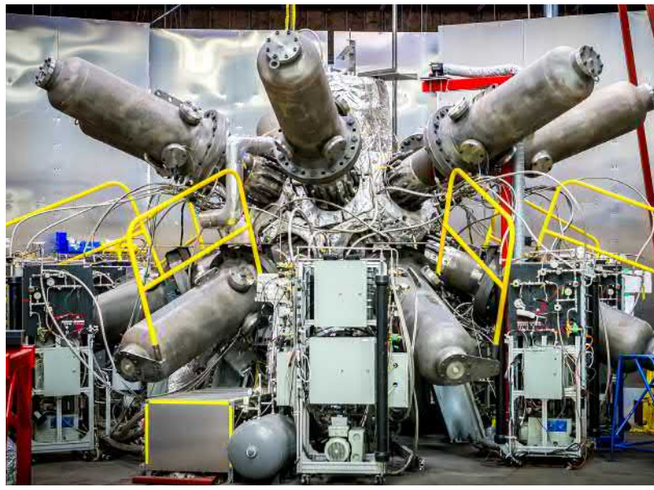
When it comes to tackling these unquestionable issues, the world's power developers, producers, and utilities are going to play a critical role. They will be the ones to bring power to remote communities and project sites, power the cities of the future in a way that's sustainable, and find ways to meet the world's increasing demand for power with sources that are carbon-free, yet reliable. While we're excited about the advancements that we're seeing in technology and the increasing global embrace of renewable power sources, we have much work to do when it comes to developing green technologies for power generation.

In my opinion, one of the most important pieces to solving this puzzle—which is achieving a less carbon-intensive world—lies in power generated by nuclear and fusion technologies. Currently, nuclear energy provides 15 percent of Canada's total electricity supply, and that figure alone reduces carbon emissions in Canada by at least 50 million tonnes annually. That's equal to nearly a quarter of Canada's greenhouse gas reduction target under the *Paris Agreement*. Combined with other renewable power sources and energy storage technologies, nuclear power can have a major and positive impact in the energy transition—if we let it. It can provide a reliable source of baseload energy safely, while providing stability to the power grid. And as populations move towards electrification, this stability will be critical.

Recently Canada's Minister of Natural Resources Seamus O'Regan explained that if Canada is to meet the carbon emissions reduction targets it agreed to five years ago in Paris, Canadians must be open to the idea of more nuclear power generation. "We have not seen a model where we can get to net-zero emissions by 2050 without nuclear," O'Regan advised. "The fact of the matter is that it produces zero emissions."

One path that will allow us to increase this reliable energy production is through the deployment of flexible nuclear technologies, like small modular reactors (SMRs). SMRs can help solve issues for urbanization and provide power to remote locations. These technologies have the ability to displace expensive carbon-intensive energy sources. While some technologies are proven and ready for deployment, others are still in the development stage. To move forward, we need to collectively help the industry get onboard today. To put this into context, if we start today, we're looking at implementation years down the road. To be successful in this endeavor, we have to come together and make carbon reduction technologies a priority and a feasible pathway not only for investors, but also for developers and users alike.

Achieving this will pay out in dividends for our collective future. And while it may seem complicated, it really doesn't have to be. The way I look at it, it's just an engineering and project implementation issue at this time. And that's where we can help. We've already



started through our support and partnerships with X-energy, GE Hitachi Nuclear Energy, and other SMR technology developers, end-users, and government regulators.

"As global energy consumption continues to increase, a sustainable energy mix is the only solution . . . And we will only get there if we continue to invest in technology and innovation."

Another area in which we are doubling down is fusion energy. The order of magnitude is clear: it's clean, energy-dense, and it carries all of the benefits of nuclear power, without the waste. If we can get past the physics hurdle, this is the kind of technology that can literally change mankind for the better. We believe this so much so that we are making it a point to be on the ground floor in demonstrating its technology and feasibility through our collaboration with organizations like General Fusion.

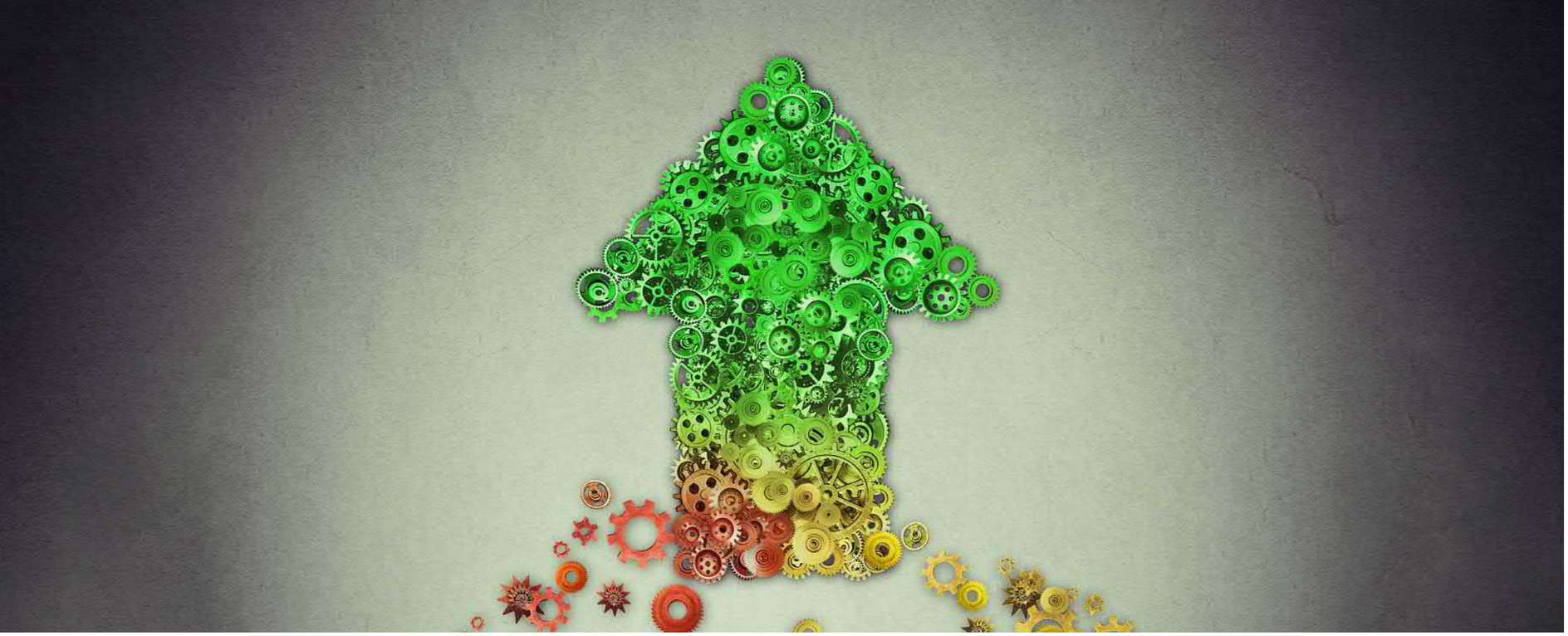
As global energy consumption continues to increase, a sustainable energy mix is the only solution. That is, new nuclear fission and fusion reactors complemented by other clean sources of energy. And we will only get there if we continue to invest in technology and innovation. Unlocking green power sources won't just meet the challenges of today, it's how we can invest in our collective future.

We have changed

Holistic problem-solving

A positive future requires positive change. Hatch's vision is to help our clients design, build, and operate projects in our communities and our industries. Innovations in technology are transforming the ways we imagine and build infrastructure. We are seeing a global embrace of renewable power sources. We are committed to improved sustainability practices and reducing our carbon footprint. We help clients through transitions by combining technical expertise with tested management consulting approaches.

Adapting to change has required us to change. Today, we are applying what we have learned yesterday. We have developed holistic problem-solving that allows us to highlight the magnitude of improved productivity, stronger environmental compliance, greater safety outcomes, and digitization—opportunities for a better world.



The world is changing—and so is the role of advisory

Markus Rebmann

Markus leads Hatch's Advisory practice globally. He has served clients in Hatch's three sectors—metals and mining, energy, and infrastructure—focusing on strategy, operations, organization, turnaround, and large capital projects. He believes that combining world-class engineers with management consultants and industry insiders as peers is when real innovation happens and the ability to deliver real, sustainable results faster increases exponentially.

Today's world is riddled with highly complex and intricate systems, critical for the safe and efficient operation of industries and our world. Our clients are continually working to improve the performance of their businesses at all levels. One of the keys issues they are facing is the pace of change combined with the fact that they are losing their technical talent at an accelerated rate and with it, the know-how to solve the challenges of today and tomorrow.

Accordingly, the role of advisors is changing too. We must help clients through this transition by combining world-class technical subject matter expertise with deep industry knowledge and tried and tested management consulting approaches and skills. This unique combination allows us to bring forward-thinking, fresh ideas and leading practices to our clients. In other words, help our clients get more value with what they already have, safely.

One important vector of value is designing and delivering successful projects that exceed their initial business case. Delivering a successful project no longer means handing over the keys to the plant on time—today, it means delivering a fully ramped-up business ahead of schedule and exceeding the initial business case. More and more of our clients realize that business readiness and ramp-up is a field of expertise in and of itself, and that neither construction nor operation teams have all the necessary skills and incentives.

Another critical vector of value we are seeing is bringing risk governance in line with the expectations of stakeholders of the twenty-first century. Existing systems and processes are tailored to deliver exceptional health and safety outcomes, but often have inherent blindspots, especially when it comes to highly unlikely events that can have catastrophic consequences. Leaders must therefore invest to prevent such major unwanted events and proactively implement catastrophic risk identification and mitigation programs that leverage deep technical expertise and allow for a respectful challenge of technical assumptions, operating standards, and investment priorities.

A third critical vector is to drive operational transformation—holistically and based on technical and organizational fundamentals—delivered by subject matter experts. With the uncertainty of the current global economic climate, organizations simply cannot afford to react with piecemeal solutions. Instead, they must now focus on tackling the difficult opportunities that others have left for later and in doing so, transform their business for long-term profitability and resilience.

"With the uncertainty of the current global climate, organizations simply cannot afford to react with piecemeal solutions."

The fourth and final vector is to maximize the value, profitability, and resilience of our clients' capital investment growth. We help clients do this through project value improvement—a structured approach to achieving full value chain integration. We help them identify, assess, and prioritize value improvement opportunities by evaluating their impact across an organization's full value chain. We have seen first-hand how this approach has delivered significant benefits for businesses, improving their project net present value and ensuring no value is left on the table.

By tackling these vectors of value in a holistic manner in concert with our client teams, we can help optimize business processes, organizational structures, and governance in order to be well positioned to achieve long-term success.

Urban planning with holistic problem-solving in mind

Lauren Newby

Lauren is a director with Hatch's Urban Solutions team. Lauren provides robust research and sound analysis to inform strategic decision-making in the fields of economic development, regeneration, and strategic planning. Her team helps reshape the world's cities through innovative technical and strategic consulting services.

By 2030, the global population is projected to reach 8.5 billion[1] and by 2050, 7 billion people will live in urban areas.[2] The impact of this on our cities and urban spaces is and will be huge, complex, and multifaceted as cities and urban agglomerations balance everything from living standards to transportation, food, access to water, and sanitation. This is also a time of unparalleled access to complex data and new technologies that present opportunities for exploration. The role of socio-economic analysis to understand the drivers of change and provide smart insights to anticipate future trends has never been more important.

Collaboration leads to more effective decisions and results

Increasingly, there is acknowledgement that tackling city development issues cannot be done in silos; a collaborative, multidisciplinary path leads to better decision-making. Efficiencies can be gained by identifying challenges early on through a comprehensive examination of socio-economic conditions and future trends and continues throughout the whole life cycle of a project. Developing a strategic response therefore that foresees both opportunities and challenges, can in turn enable a better articulated shared vision that sets out a clear plan of action. Securing public sector investment to support implementation is also key, and planners and developers, for example, need to consider a robust approach to business case development that establishes a clear return on investment. Once a project has concluded, it is important to distill what works through monitoring and evaluation to assess good practice, lessons learned, and value for money.

Planning for tomorrow

City planners rely on deep technical capabilities, rigorous analysis, and visualization of complex data to understand future trends. In helping an urban setting, for example, overcome multiple economic barriers targeted growth strategies focus on several wide-ranging interventions such as planning and land use, transport, health and well-being, skills, clean growth, and, most recently, COVID-19 recovery can ensure a more prosperous future. These thorough analyses provide cities with stronger insights into future planning and are vital in the decision-making processes.

Urban settings must consider the factors that stimulate change, what will influence the economy and what the implications will be for potential future trends. Whether it is the public or private sector, all investment must demonstrate value for money. Economics-led master plans are therefore based on what is deliverable, investable, and fundable.

"Cities must consider the factors that stimulate change and, subsequently, what will influence the economy and what the implications will be for potential future trends."

What does the client of the future look like?

The public sector is an important driver for demonstrating value through nationally and internationally recognized guidance and practices. We have seen the private sector adopt many of these key standards set by governments around the world. This focus on standards and value is a key part of how projects should be approached; through business case development, appraisals, and evaluations to ensure that a sound evidence base underpins strategic decisions.

We are currently facing and working in unprecedented times where the impact of COVID-19 is testing the resilience and adaptability of how we live and work. We have witnessed rapid innovation and increased agility in our economies as businesses and services pivot to enable safe operations in this new norm. The disruption of the pandemic has created a fundamental shift in how we live, play, study, and work. It is an opportunity for cities to understand the scale and characteristics of new challenges and develop recovery strategies that will encourage resilience and growth.

At the same time, issues such as the climate emergency and the commitment to net zero carbon emissions, digitization, automation and artificial intelligence, as well as public funding constraints continue to shape our future. There are uncertainties ahead and the long-term effects of COVID-19 on the economy are not yet fully understood. In response, the world needs to be agile in embracing new opportunities and diversifying, enabling us to become better-prepared for positively changing environments in the future.

Sources:

[1] United Nations, "Population: Our growing population", 2020, https://www.un.org/en/sections/issues-depth/population

[2] Hannah Ritchie and Max Roser, "Urbanization", 2020, https://our-worldindata.org/urbanization#how-many-people-will%20live-%20in-urban-areas-in-the-future

On the path to digitization

How the mining industry is adapting to change

Jeanne Els

Jeanne Els is Hatch's director of Digital, Australia-Asia. Digital is a growing area of our business that includes digital consulting, systems integrations, and development of solutions and product sales. An exciting aspect of Jeanne's role is her involvement in the development of new solutions using the latest digital techniques and technologies to improve operations. She has experience in commissioning, project development, and bringing new technologies into implementation.

New high-grade ore deposits are getting harder to access. Mines are getting deeper, in increasingly inaccessible locations, requiring more complex operations. And further, companies are having to recruit from a workforce that's less accepting of remote work sites. Faced with an aging workforce, the industry is finding it challenging to recruit new, young talent who sometimes perceive mining as less innovative and "tech savvy" than other sectors.

Simultaneously, shareholders are demanding improved productivity, stronger environmental compliance, and better safety outcomes. With a greater global focus on climate change and sustainability, there's an ever-increasing need to improve the traditional image of the resource industry.

We need to educate the public on how, through technology, mining is improving its global footprint, supporting efforts to combat climate change, and contributing valuable resources that help make electrification and decarbonization possible. The industry needs new and diverse skills to take advantage of increased digitization and contribute positively to this changing world. To compete for this talent with companies in the technology space, we need to positively change the perception of mining.

"In our new era at Hatch, we committed to creating a better world through positive change. In this context, we can help our clients overcome some of these challenges through digitization."

The exciting reality is that digital technologies can help address things like remoteness, safety, productivity, and environmental compliance. And, by addressing these challenges in partnership, our clients can concurrently improve their operations, stakeholder image, and brand performance.

A complex, changing world

We've recently faced unprecedented challenges—from the impacts of climate change to a global pandemic. Communities and organizations have had to adapt—operating remotely, ramping up safety protocols, and focusing on maintaining their employees' well-being.

There's an increased need for an accelerated adoption of digitization globally to reduce the reliance on people being physically present. There's also a need for better visibility across disrupted supply chains. These themes aren't new, but the business imperative exists like never before. The good news is, we have the technology to make it happen!

Over the next few years, we will be helping our clients:

- Strengthen the digital foundations for our clients to support broad adoption of digital technologies
- Remove people from "the line of fire" through the implementation of autonomous technologies
- Implement robotics or drones to perform dangerous tasks, such as lancing open a furnace or inspecting a precipitation tower
- Use augmented and virtual reality technologies for training and virtual site walk-throughs, and enabling remote work
- Use online, integrated simulation and optimization supply chain tools to assist operators with making the right decisions across very complex systems
- Use data to create models across processes to predict outcomes and ultimately optimize the process.

Our digital transformation

For the history of our company, Hatch has been on the journey towards digitization. We haven't arrived yet—it's a marathon, not a sprint—but we've made significant progress across our business.

With our digital project delivery tools, we're implementing a cloud-based, agnostic, central data environment that's fundamentally changing the way data flows between design tools and project delivery tools. This transition to truly data-centric project delivery will provide our clients with access to dynamic, real-time information and the ability to create key performance indicators that extend well beyond the insights available from traditional, static measures.

Data-centric architecture will allow us to directly connect the project to the operation, and seamlessly transition data into the operational systems as the digital asset matures over the life of the project. This architecture provides the foundation for the digital twin.

What have we learned so far?

- Be bold. The benefits of digital integration far outweigh the risks. We use these technologies in our everyday lives and, in many cases, would struggle to live without them. Why should our business operations be any different?
- The software isn't the solution, people and process are. The technology's there to make what's already working more effective.
- We work in very complex environments. To create a successful digital transformation, business value must be front of mind—and this step's often missed. Deep technical skills across all relevant engineering disciplines are also required.
- The data must have context within your operation, otherwise it's useless. Also, historical performance is not an indication of best performance.

In this new digitally enabled world, the mining industry is adapting its skills mix and work processes to further drive innovation. We are making positive progress to reduce environmental impacts through technology. There is a great opportunity to use these shifts to change old perceptions. Mining is innovative and focused on a better world.

As a professional services firm that's been focused on the betterment of our world through positive change for the past sixty-five years, our value proposition has evolved to address the ever-changing needs of our clients and their respective businesses. We have consistently navigated and excelled through transformation and adversity. Our knowledge, experience, and passion have confidently served our clients, strengthened communities, tended to environmental crises, and successfully delivered projects.

We know that we all have a better outlook for what the world could look like if we choose to act with purpose. We have the tools, the skills, the opportunities, and the vision.

We were ready. We are ready. We will be ready.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