AI FOR THE COMMON GOOD

An Ethical Framework to Harness AI's Greatest Potential

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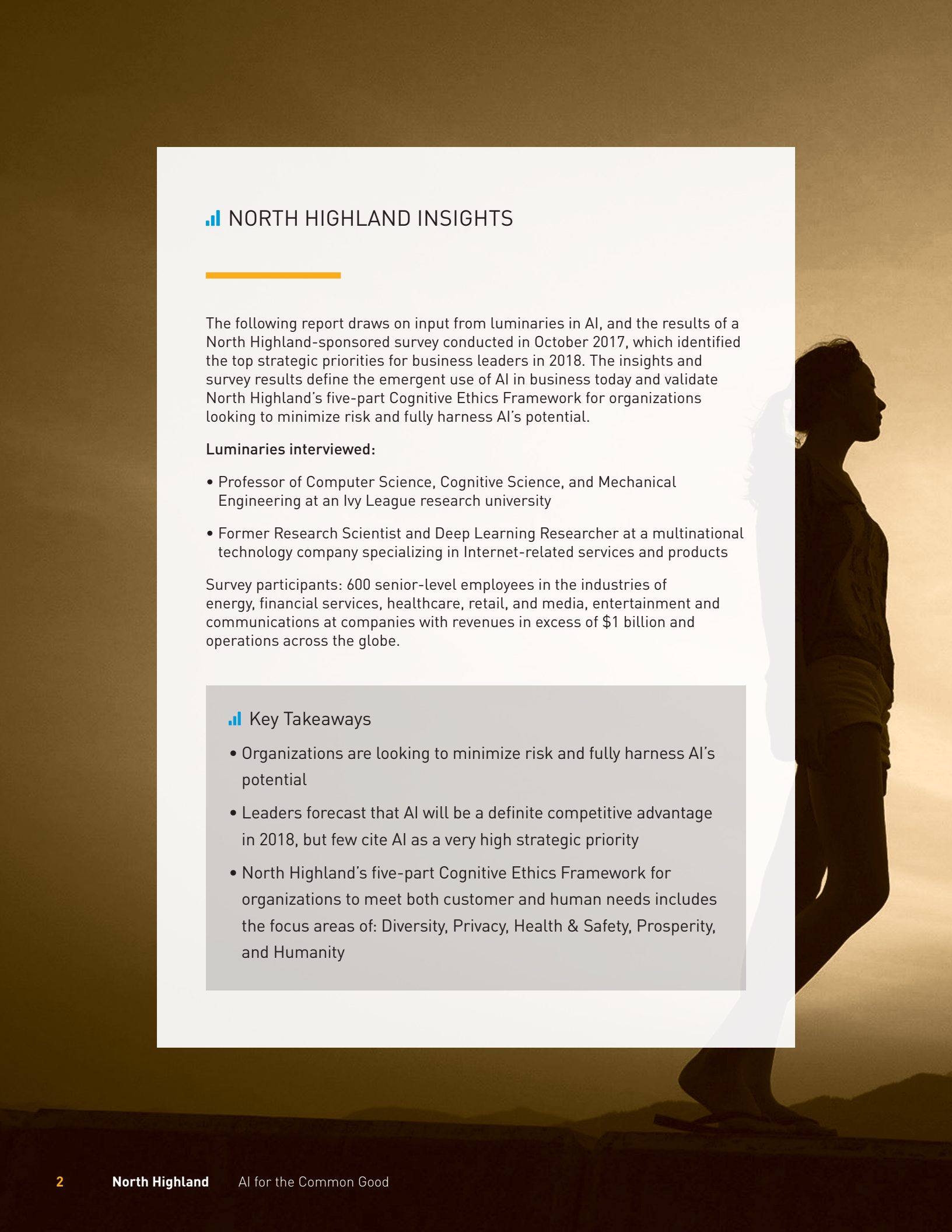


NORTH HIGHLAND INSIGHTS

The following report draws on input from luminaries in AI, and the results of a North Highland-sponsored survey conducted in October 2017, which identified the top strategic priorities for business leaders in 2018. The insights and survey results define the emergent use of AI in business today and validate North Highland's five-part Cognitive Ethics Framework for organizations looking to minimize risk and fully harness AI's potential.

Luminaries interviewed:

- Professor of Computer Science, Cognitive Science, and Mechanical Engineering at an Ivy League research university
- Former Research Scientist and Deep Learning Researcher at a multinational technology company specializing in Internet-related services and products

Survey participants: 600 senior-level employees in the industries of energy, financial services, healthcare, retail, and media, entertainment and communications at companies with revenues in excess of $1 billion and operations across the globe.

Key Takeaways

- Organizations are looking to minimize risk and fully harness AI's potential
- Leaders forecast that AI will be a definite competitive advantage in 2018, but few cite AI as a very high strategic priority
- North Highland's five-part Cognitive Ethics Framework for organizations to meet both customer and human needs includes the focus areas of: Diversity, Privacy, Health & Safety, Prosperity, and Humanity

"The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. The Fourth Industrial Revolution will usher in a new, automated way of working, one where both repetitive tasks and higher-level knowledge skills are efficiently executed by machines. In turn, this will require us to redefine the most valuable human skills." [1]

KLAUS SCHWAB,
FOUNDER AND EXECUTIVE CHAIRMAN, WORLD ECONOMIC FORUM

The iPhone is just 11 years old. In just over a decade, we've rapidly evolved from having minimal engagement with technology to tech being a fully integrated driving force in our lives. We are tethered to our phones, computers and devices, eyes typically down on our screens instead of engaged in real human interactions. What happens when we add the ultimate and potentially most frightening of all technologies—AI—to the mix? For all its apocalyptic hype, there is another story that can be told about AI—a story where the technology is actually what increases the potential of humanity.

IN ONE SURVEY, 60 PERCENT OF ADULTS SAID THEY KEEP THEIR CELLPHONES NEXT TO THEM WHEN THEY SLEEP. IN ANOTHER SURVEY, HALF THE RESPONDENTS CLAIMED THEY CHECK THEIR EMAILS DURING THE NIGHT.[2]

GARTNER PREDICTS THAT BY 2020, THE AVERAGE PERSON WILL HAVE MORE CONVERSATIONS WITH BOTS THAN WITH THEIR SPOUSE.[3]

AI can empower and amplify the best of who we are if we train it to. It has the potential to free humans from meaningless work and to facilitate deeper human connections. It can positively compound our impact—all at the pace and scale demanded by the current Industrial Revolution.

AI is exciting and wondrous, but this revolution is also a human one. In fact, the level of human effort required to successfully implement AI (and manage the implications) is far more complex than what we've seen before, and the brand and ethical implications go beyond simple technology launches.

The following perspective is intended for leaders in all industries who are ready to move beyond AI as a hypothesis. It sets the stage and provides a five-part Cognitive Ethics Framework to help leaders create the parameters within which organizations can mindfully design and deploy AI—all with humanity at the core. This perspective—and

the framework we provide—is for those leaders ready to adopt AI responsibly and effectively. It is for leaders ready to capture AI's competitive advantage and embrace the interconnectedness of how it can improve society at large.

Ignoring AI is akin to ignoring electricity or the internet. The sooner organizations engage, the sooner they can get their bearings and progress beyond lessons learned to have real impact. Those organizations that forge ahead, and do so with humanity at the center of their AI strategy, will write the rules of tomorrow.

59 PERCENT OF LEADERS FORECAST THAT AI WILL BE A "DEFINITE" COMPETITIVE ADVANTAGE IN 2018. YET ONLY 24 PERCENT OF LEADERS CITE AI AS A "VERY HIGH" STRATEGIC PRIORITY.[4]

THE FOURTH INDUSTRIAL REVOLUTION

AI isn't new. In the past, the field of AI has gone through phases of rapid progress and hype, quickly followed by a cooling in investment and interest, which is often referred to as "AI winters."

What is new is the unprecedented pace and scale at which we must conduct business to meet human demands matched with advances in hardware, software, and access to technology. More than ever, companies can solve complex problems instantly and ubiquitously. And more than ever before, simply to compete, they must.

"There's definitely hype," said Andrew Ng, chief scientist at Baidu Research, and a major figure in the field of machine learning and AI, "but I think there's such a strong underlying driver of real value that it won't crash like it did in previous years."[5]

This Fourth Industrial Revolution,[6] a revolution AI has triggered in many ways, will fundamentally change how we live and work.

"Much greater changes can happen down the road than what we can see right now," said one of the AI luminaries that we interviewed. "What worries people in the field at this point is that there are subtle things that are happening that have the potential to cause much greater changes down the road than we're able to predict."

Now, at the advent of this revolution, we face a critical question: How do we build and manage AI while ensuring the transformation changes our world for the better? The answer is ethics—but not as a back-end consideration. Instead, ethics have to be seen as a foundational component that is defined early and guides the technical design, build, and deployment.

OVERALL, ONLY 41 PERCENT OF LEADERS FEEL PREPARED TO ADOPT AND OPTIMIZE AI TECHNOLOGY. WITHIN CERTAIN INDUSTRIES, CONFIDENCE IS EVEN LOWER: ONLY 26 PERCENT OF LEADERS IN THE FINANCIAL SERVICES INDUSTRY REPORT CONFIDENCE IN THEIR AI READINESS.[7]

THE FIVE-PART COGNITIVE ETHICS FRAMEWORK

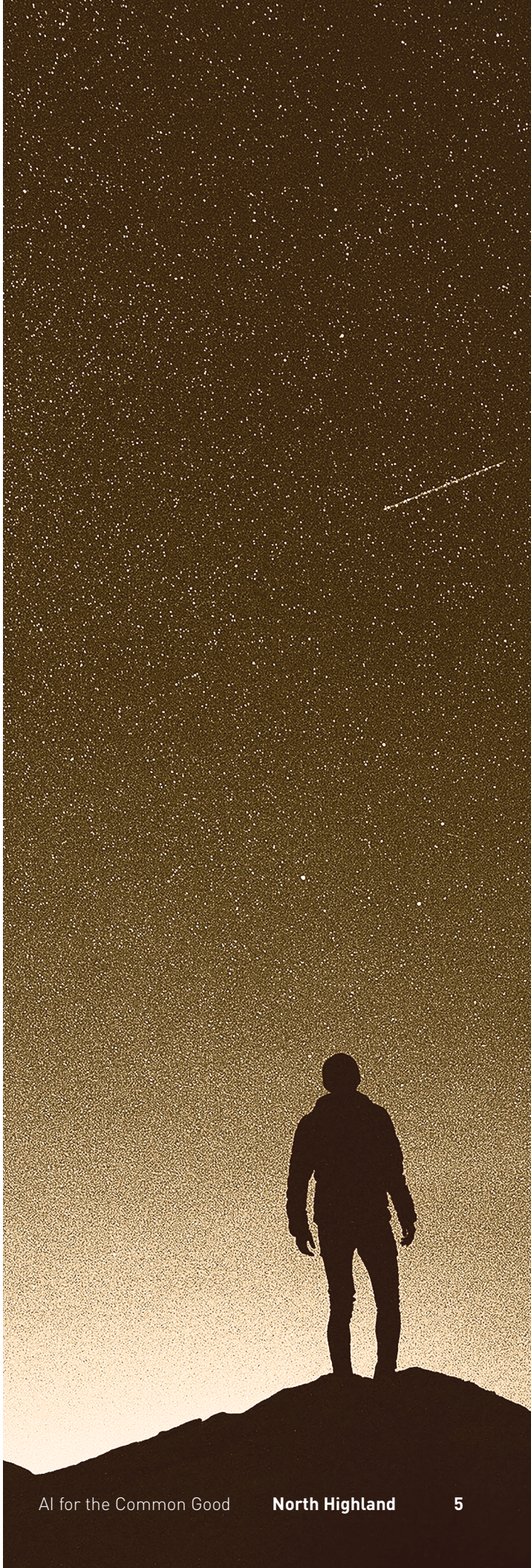
Through AI, the Fourth Industrial Revolution can trigger the ultimate human empowerment movement—if, and only if, it is designed and deployed with humanity at its core and within an ethical framework.

Ethics—the common rules of society that dictate good from bad behaviors—are all that separate the winners from the cautionary tales in the current AI white space. And they are the lifeline to human trust—in the brand, the data, the algorithms, and the outputs—that is absolutely required for AI adoption.

In addition to helping organizations optimize their AI endeavors, ethics are now a critical element of basic brand management. As consumers seek new ways to connect with the world around them, a company that applies ethics to move beyond the commercial will attract loyalty and drive advocacy. To do so, companies must design and deliver AI experiences that meet not just a customer's needs but also human needs—needs with deeper meaning.

"AI IS IN ITS INFANCY, AND LIKE CHILDREN, HOW IT GROWS REFLECTS HOW WE RAISE AND NURTURE IT."[8]

The following five-part Cognitive Ethics Framework doesn't attempt to define what is good—or even ethical—for every organization. Instead it empowers organizations to realize AI's full potential by crafting a strategic position in five key areas, all in a way that aligns with organizational purpose, mission, and brand.



1 DIVERSITY: Bias busting

In South Korea, where it is common to sleep on the ground, a vacuum robot "ate" a women's hair while she slept. The robot had no malicious intent; it acted as it was programmed to do. But that's just it: the implications of different cultures weren't considered during the product development process. Inherent bias meant that no one asked, "Does everyone who would use this product sleep on a bed, and what do we need to consider for those who don't?"

Here's the problem with bias: you can't eliminate it, you can only minimize it. Bias is a part of being human, and as long as AI is designed and deployed by humans, it will inherit the biases of mankind. The risk today is that once those biases reach the market, associated brands will quickly find themselves as the defense in the court of public opinion.

What to do about it: *Deploying AI with diversity in mind*

- ✓ While bias can't be eliminated, bias testing in the building process can help identify it. Establish a robust data science system to seek out "dirty" or incomplete data. Conduct objective and comprehensive fail testing with groups not intimately involved in the project to ensure multidimensional assessment.

- ✓ Approach every decision with intent. Over the course of a bot development project, North Highland conducted user-understanding interviews that revealed a sensitivity among our client's female tech employees in using an assistant bot with a woman's name — a known gender bias in the industry. Acknowledging that sensitivity didn't eliminate female name options; however, it ensured intentionality in the decision of whether a female-named bot would be rolled out and how it would happen.

- ✓ Diversify the racial, ethnic, gender, and socioeconomic mix of the physical teams building the technology, and collect user insights across a similarly diverse base. Incorporate a diversity of viewpoints such as personality traits and domain expertise, as well as age, gender, sexual orientation, and ethnic diversity. Inclusion of women, for example, only partially solves a diversity problem if those women share the same ideological and socioeconomic characteristics of the teams they join.

2 PRIVACY: Integrity by design

Data is AI food, and companies and governments are aggregating enormous stores of it to feed their AI initiatives. But in most cases, consumers, who are growing increasingly concerned with personal data privacy, aren't giving consent for personally identifiable data connections to be made, and are woefully unaware of how their data is being used.

Today, many consumers only have a nascent understanding of the value of their data, an understanding likely piqued by high profile events precipitated by companies like Facebook and Equifax. However, that understanding is evolving, and brands that get in front of it will earn consumer trust.

What to do about it: *Deploying AI with privacy in mind*

- ✓ Brands must demonstrate their respect for and protection of their consumer's data. Give consumers options for how much data to share and empower them to take charge of their data. Allow consumers to opt in and out as they wish.

- ✓ Rewrite policies in everyday language. Provide transparency regarding data collection and usage in language that is easily understood by the average person and written at eighth grade (or lower) reading levels. Bonus points for giving consumers a simple way to see and access what data you have and how you use it.

3 HEALTH AND SAFETY: Designing for the human/robot dynamic

Artist Neil Harbisson was born completely color blind, but a device attached to his head turns color into audible frequencies. Instead of seeing a world in grayscale, Harbisson can hear a symphony of color.

He learned the sounds of color and even identified favorite colors. In time, he even dreamed in color—wholly independent of the software—and eventually stopped associating the software as an extension of himself and instead as an integral part of him.

> **"BECOMING A CYBORG ISN'T JUST A LIFE DECISION. IT'S AN ARTISTIC STATEMENT—I'M TREATING MY OWN BODY AND BRAIN AS A SCULPTURE."**
>
> **NEIL HARBISSON** TO THE GUARDIAN[2]

Amplified with AI, this type of biometric technology offers superhuman potential. Undetected cancers, kidnapped children, and even the common cold could be things of the past.

However, the ethical considerations for the companies producing technologies that become a part of our physical person are heavy. How does a brand protect the freedom and autonomy of a citizen who is always trackable, perhaps even controllable?

Moreover, how do we as a society distinguish between human and robot? How do we test, reward, and maybe even punish a human/machine combination?

What to do about it: *Deploying AI for health and safety*

Answering these questions starts with an understanding of and consideration for the three relationships AI has with humanity:

- **Humans to Robot:** Recently, a robot named Sophia was granted the human right of citizenship in Saudi Arabia. The societal standards for what humans do to and with bots, known as Roboethics, are blurred and evolving. Today, the onus is on organizations to protect bots from misuse, as defined by our legal and ethical systems.

- **Robot to Humans:** Because Sophia is a citizen, it follows that she should be awarded and afforded the same rights and responsibilities as other human Saudi Arabian citizens. But what about the vast majority of non-citizen bots?

  Asimov's Laws of Robotics have been attempting to regulate this dynamic since the early 1940s, yet today there are no definitive parameters for how and at what point robots—as opposed to their human developers or owners—are held responsible for their actions. One of the AI luminaries we interviewed shared, "If you design a bridge as a civil engineer and the bridge fails, are you guilty if people die? What if there's a standard's body that specifies a bunch of standards and then you meet all the standards and then it still fails? Are you indemnified because the standard's body ratified it? There's a lot of these sorts of questions that circle in the field of civil engineering but not in machine learning research. There's really no standards for the ethical practice of machine learning at this point, and nobody's really talking about this, either."

  In lieu of industry-wide standards, organizations must precisely define what legal and ethical responsibility looks like for their bot deployments.

- **Machines to Humanity:** Organizations must consider the (indirect) impact of AI technologies to humanity at large, particularly when designing systems capable of making life-and-death decisions and providing robotic companionship to humans. The fact that Amazon's Alexa machine learning engineers had to create a task force to address the numerous out-of-scope "human" questions she was receiving (think, "Alexa, can you prevent suicide?") demonstrates AI's nascent impact on issues of life and death.

4 PROSPERITY: The future of work and commerce

Some foretell a future in which AI leads to unprecedented economic inequalities and even alters the global balance of power.[10] Others are more optimistic, looking back to the First Industrial Revolution, where the automation of agriculture freed human potential to bigger and better things.[11]

Either way, AI presents organizations with an opportunity to impact economic inequality on a global scale.

Irrefutably, AI will reshape what work means. AI has already reduced the availability of some blue-collar jobs and will continue to do so. And unlike prior Industrial Revolutions, white-collar jobs are also at risk with the rise of cognitive lawyer, financial advisor, and medical bots.

However, the development and management of these technologies also promise an immense amount of job creation. The replacement of automated tasks will make way for jobs that require elements of humanness that robots are unlikely to gain in the near future. Already, today's jobs demand more noncognitive skills than they did in the past. Tasks requiring social and service skills have grown by 16 percent and 17 percent, respectively, while tasks that require high levels of math skills have only grown by 5 percent.[12] This shift requires organizations to upskill and reskill their workforce to transition them to the jobs of tomorrow.

To do that well, brands must do something that may appear counterintuitive within a growing robot workforce: They must prioritize a human experience like never before and understand where and how employees drive that most.

What to do about it: *Deploying AI for prosperity*

- ✓ Focus on workforce planning, reskilling, and training to minimize economic disparity. Support and partner with third-party innovators like Kentucky-based mining veteran Rusty Justice, who cofounded Bit Source, a code shop that builds its workforce by retraining coal miners as programmers.[13]

  Globally, 80 percent of decision-makers say they'll retrain or redeploy employees whose roles are replaced or plan to be replaced with new technologies.[14]

- ✓ Bringing AI into the enterprise also calls for investments in software and technologies that support its implementation, with training and skill-building for employees working alongside it.

- ✓ As of June 2017, 49 percent of the world's population did not have internet access.[15] Organizations must consider how their AI applications will deepen global wealth disparities and seek opportunities to broaden accessibility of these technologies globally, for the collective benefit of humans.

5 HUMANITY: AI with purpose

AI's potential to add efficiency and accuracy is game changing. But technologies do not make experiences; they merely enhance or empower them. One of the AI luminaries we spoke with noted, "We're always very cognizant of, 'Is the thing that we're building actually beneficial to [people] or is it just useful to the robot?'"

So the question becomes, just because you can deploy an AI technology in a space, should you? Or, could a human touch become your differentiator? If you think of a customer journey, where are the points where the technology might make the experience easier or more orchestrated, and where can a human impact empathy and relevance?

What to do about it: *Deploying with humanity*

- ✓ Optimize humanity as a competitive differentiator. How your organization demonstrates its humanness in AI will ultimately be the mechanism by which you secure the hearts and minds of consumers and serve a greater purpose beyond profit margins.
- ✓ At minimum, organizations must internally define what work it "saves" for humans and why.
- ✓ Consider how AI can be leveraged to progress the human condition for all humans, not just how it can be applied to make money or avoid disruption.
- ✓ Design and deploy AI with an experiential view: Just because a robot *can* doesn't mean it *should*.

THE DESIGNERS OF AI WILL SHAPE OUR COLLECTIVE FUTURE

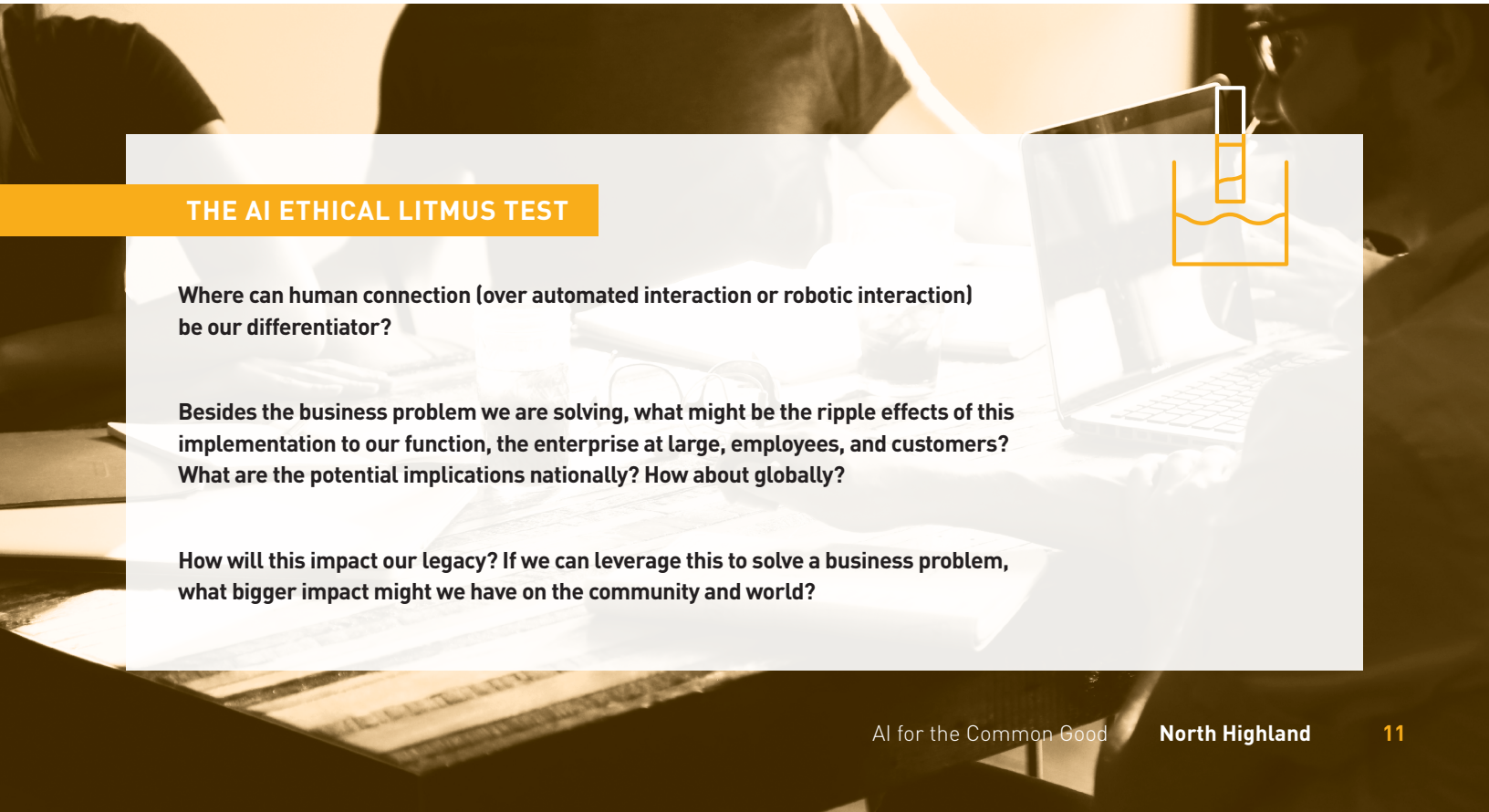
A cognitive solution designed to solve a business problem will always do more. The scope, scale, and speed of the Fourth Industrial Revolution and AI create exponential impact. The challenge for business is to consciously and thoughtfully leverage that exponential impact for good.

> **"THE FOURTH INDUSTRIAL REVOLUTION HAS THE POTENTIAL TO ROBOTIZE HUMANITY, AND THUS COMPROMISE OUR TRADITIONAL SOURCES OF MEANING—WORK, COMMUNITY, FAMILY, IDENTITY. OR, WE CAN USE THE FOURTH INDUSTRIAL REVOLUTION TO LIFT HUMANITY INTO A NEW COLLECTIVE AND MORAL CONSCIOUSNESS BASED ON A SHARED SENSE OF DESTINY."**
>
> **KLAUS SCHWAB**

We cannot leave the future of humanity solely in the hands of the IBMs, Amazons, and Googles of the world. In order to ensure the most complete representation of business problems and social challenges, every company needs to define how it will approach cognitive ethics, and consumers need to demand it.

As we define what it means to live in a world with robot colleagues and technology previously only housed in the imaginations of science-fiction writers, we must design AI as the best version of ourselves. Using the five-part Cognitive Ethics Framework presented here is a start—a start that begins rather inconspicuously with your very first automation project or the most seemingly simple chatbot.

Our best future is yours to create.



THE AI ETHICAL LITMUS TEST

Where can human connection (over automated interaction or robotic interaction) be our differentiator?

Besides the business problem we are solving, what might be the ripple effects of this implementation to our function, the enterprise at large, employees, and customers? What are the potential implications nationally? How about globally?

How will this impact our legacy? If we can leverage this to solve a business problem, what bigger impact might we have on the community and world?

ABOUT NORTH HIGHLAND

North Highland is a global management consulting firm known for helping clients solve their most complex challenges related to customer experience, performance improvement, technology and digital, and transformation. We add value and support our clients across the full spectrum of consulting, from strategy through delivery. We bring the big ideas, then we make them real. North Highland is an employee-owned firm, headquartered in Atlanta, Georgia, with more than 3,000 consultants worldwide and 60+ offices around the globe. The firm is a member of Cordence Worldwide (www.cordenceworldwide.com), a global management consulting alliance. For more information, visit northhighland.com and connect with us on LinkedIn, Twitter and Facebook.

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Joni Roylance, Global Lead for AI Readiness at North Highland, is hyper connected to the emotional world of humans and how those emotions impact everything in business. She has over ten years' experience leading all things people-focused including employee experience design, customer experience enablement, culture definition, talent management, organizational design, and behavioral change.

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