

THE TRILLION-DOLLAR OPPORTUNITY

VISIBILITY INTO HUMAN POTENTIAL AS A PATHWAY TO INCLUSIVE GROWTH

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Executive Summary

Meet Juan de la Cruz.² By almost any objective measure, Juan could be the next Bill Gates, or perhaps more appropriately, the next Dado Banatao. Relative to the general population, he is the 95th percentile or above in 10 of 11 traits and competencies indicative of high potential, including STEM, Problem Solving, Logical Reasoning, Leadership, Resilience and Learning Agility. If you are a recruiter, you might be wondering how you can get in touch with Juan. Except Juan isn't in the job market – and may never be in the formal economy. He is 13 years old and lives in General Santos, Mindanao. He is in a public school system from which just 12% of those who enter graduate from college. In fairness to Juan, Bill Gates didn't graduate from college either. But all of a sudden, his prospects look bleak.

They don't have to be. How can we help the Juan de la Cruz' of the world build and optimally utilize their skills, knowledge, traits and competencies to their full potential? How can we help employers find Juan and others who might be their most productive employees in a given role, in a world where they are otherwise invisible? The opportunity of our time, easily a trillion dollar opportunity, is to unlock the potential of Juan and billions of others.

There is a growing wave of tools and technologies that can be used to that end. These tools apply analytics to large sets of data so that companies can better understand the combination of skills, knowledge and traits that characterize their most productive employees and hire accordingly. Other tools are emerging at the nexus of cognitive and behavioral neuroscience, to more precisely measure the historically unobservable skills, traits and competencies critical for success in a given role at an individual level.

This paper explores the opportunity for these tools and technologies to drive inclusive growth by creating more efficient, effective and diverse talent markets. We believe that these tools will revolutionize talent markets by enabling companies to hire more productive employees in an objective, merit-based and cost effective manner. Equally important, individuals can be empowered to make themselves visible in an otherwise opaque labor market, and have better information to inform their investments in educational and professional opportunities.

We are exploring applications of these technologies in the Philippines, a country that is enjoying a period of high growth and political stability, but also suffers from pervasive and persistent inequality. With 50% of the population under the age of 24, there is an urgent and unprecedented opportunity to enable those who traditionally lack the access, resources and relationships to participate in the current system, to engage and achieve their full potential. If we make the right investments today, we can set the country on the path to inclusive growth, peace and prosperity for decades to come.

² Name masked, but based on an actual student from our Mindanao pilot in 2015.

Emerging technologies that will revolutionize talent markets

If one could unlock human potential, matching every adult with the best professional opportunity available that utilizes their skills, knowledge and traits to their fullest, what would be the impact? Even if you conservatively assume that the resulting productivity gains create just a 1% improvement in global GDP, you are looking at nearly a trillion dollar opportunity.

The question of how to identify, secure and develop high potential talent is already top of mind for organizations around the globe. Companies are making enormous investments in their staff, with US corporations spending almost \$72 billion on recruitment and US\$70 billion on employee professional development annually. Those investments alone total nearly 1% of US GDP. And they aren't limited to the US. Deloitte estimates that global corporate investment in professional development was over US\$130bn in 2014.³

Research also suggests that the market for talent will become increasingly competitive. By 2020, the McKinsey Global Institute estimates that we will have a global shortfall of 40 million college-educated workers, as well as a deficit of 45 million workers with secondary-school educations and vocational training in developing economies.⁴

How will we bridge the gap? Is there even a gap to bridge? We can and should enable as many people as possible to fulfill their educational aspirations, as education provides benefits far beyond its established role as a stage-gate for many career paths and opportunities. However, how many jobs that currently require a college diploma as a minimum qualification actually utilize the knowledge and skills that are acquired as part of that degree? To the extent that there are skills, knowledge and traits required to be successful in a given role, for those that are unable to access college education, are there other pathways to obtain them? Such as training programs, or in-house professional development programs consistent with the investments that companies are already making?

Companies are already making this leap, and are increasingly utilizing data to recruit based on one's skills, knowledge, traits and other factors that are determined to drive employee productivity. San Francisco based Evolv is a good example of the big data approach to human capital. Evolv aggregates data on potential and current employee attributes - everything from scores on skill and personality assessments, to one's education and training, and even one's daily commute. Their platform then analyzes this data, along with internal

³ Bersin, J. (2013, May 13). Corporate Recruiting Explodes: A New Breed of Service Providers. *Forbes Leadership*. Retrieved from <http://www.forbes.com>

Bersin, J. (2014, Feb 4). Spending on Corporate Training Soars: Employee Capabilities Now A Priority. *Forbes Leadership*. Retrieved from <http://www.forbes.com>

Yang, A. (2014, February 11). The War for Talent. *Huffington Post*. Retrieved from <http://www.huffingtonpost.com>

King, M. (2014, April 29). Want Your Company to Succeed? Better Invest in Your Employees. *UVM Outreach*. Retrieved from <http://www.learn.uvm.edu>

⁴ Dobbs, R. (2012, November). Talent tensions ahead: A CEO briefing, McKinsey Global Institute. Retrieved from <http://www.mckinsey.com>

data on performance and retention, and predicts the highest potential employee for a given role, as well as providing recommendations on everything from professional development to compensation. Evolv was recently acquired by Cornerstone, whose software helps manage over 20mm people across 191 countries. This approach is catching on and will have growing impact at large scale.

Going beyond big data and traditional assessments, there is also an emerging class of technologies that seek to more objectively measure skills and traits that are critical for success in any given role, but that have historically been largely unobservable as part of the recruitment process, such as one's cognitive abilities, personality traits, social and emotional intelligence and mindsets. These new technologies push beyond the traditional question-based assessments to analyze one's actual behavior, and use that data to measure previously unobservable traits and skills in a more objective fashion.

On the skills front, one such example is an internet game called Starfighter, that was recently developed to assess the skills of computer programmers based on how they play a game. Starfighter is free for anyone to play on the internet, and ultimately assigns its players a score, which leading technology companies can pay for in order to identify high potential talent. Games like this can lead to top programming jobs right out of high school, bypassing more traditional, time-consuming and expensive recruitment channels.

In terms of one's traits, Palo Alto based Knack is on a mission to help individuals understand their human potential. Guided by a team of cognitive and behavioral neuroscientists, Knack is able to measure over 35 personality traits, cognitive abilities, emotional and social competencies and mindsets based on how one plays their mobile-based games. Knack has further identified the unique combination of these traits that drive performance in over 40 personal and professional competencies, which can be used to more objectively and transparently *match* talent to a range of educational and professional opportunities.

The ability to measure these unobservable traits, and understand the combination of traits required for success in any given role, has enormous potential to create more efficient, effective and diverse talent markets. For companies, they can analyze their top performers with proven technologies to more objectively understand the skills and competencies required to succeed in different roles. Armed with this information, companies can then consider a much broader talent pool, and use this knowledge to make better hires, faster, in a more objective, meritocratic and cost-effective manner. These technologies can also substantially reduce recruitment bias related to physical attributes, race/ethnicity and gender. Take the case of race. Economists Sendhil Mullainathan and Marianne Bertrand demonstrated that resumes with identical qualifications were twice as likely to get selected if they had white sounding names like Emily or Greg vs. African-American sounding names like Jamal and Lakisha.⁵ Labor productivity, company performance and economic growth would all benefit

⁵ Bertrand, M. and Mullainathan, S. (2004). Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. *The American Economic Review*, Vol.94(4), pp. 991-1013.

from improved matching of employees with employment opportunities and corresponding increase in diversity of the workforce.

Individuals also stand to benefit from these technologies. Similar to employers, individuals also lack objective and full visibility into their underlying skills, traits, and competencies, as well as those required for their aspired careers. Once revealed, individuals can be more intentional about their investments in educational and professional development, looking at the incremental investments required to succeed versus the financial returns over time. Manila based Kalibrr has introduced over 20 online skill assessments for job seekers. They are also working with employers to define the combination of skills and competencies required for success in various roles, with the ultimate goal of feeding back to candidates on their fit with aspired jobs, along with recommendations on where candidates can go to address any identified skill gaps so that they will be more employable and competitive in the job market.

Perhaps most importantly, free or low cost technology-based tools that give an independent and trusted assessment of one's difficult to signal skills and traits can both enable and empower candidates to make themselves visible to potential educational institutions and employers – leveling the playing field for those with the aspiration and motivation to access said technologies. If one believes that talent is even distributed, but opportunity is not – the doors of inequality can now be kicked wide open.

The challenge and the opportunity in the Philippines: High stability, growth and inequality

The Philippines is at a historic moment. The economic and political context has never been better. In 2014, GDP grew at 6.1%, and the rolling three-year average growth is at an all time high of 6.7%.⁶ Competitiveness continues to improve, with the World Economic Forum Global Competitiveness index now at 4.4 (52nd globally) in 2015.⁷ Consequently, FDI is at an all time high of \$6.2 billion for 2014, bolstered by the Philippines recent upgrade to investment grade status (BBB/Baa2).⁸ Last year, over 1mm jobs were created and unemployment dropped from 7.5% to 6.6%.⁹ This was driven by growth in the services sector, which employs 55% of the population and contributes 57% of GDP.¹⁰ With the election of Benigno Aquino in 2010, the Philippines is also benefitting from a period of unprecedented political stability and a renewed commitment to reduce corruption.

⁶ World Bank. Philippines Overview. Available: <http://www.worldbank.org>

⁷ World Economic Forum. (2014). *The global competitiveness report*. Geneva: World Economic Forum.

⁸ Philippines credit ratings. *Government Philippines Official Gazette*. Retrieved from: <http://www.gov.ph>

⁹ Taruc, P. (2015, March 15). 1 million new jobs push down unemployment to 6.6%. *CNN Philippines*. Retrieved from: <http://www.cnnphilippines.com/business;>

Cerda, J. (2014, September 10). Unemployment rate drops as 1M jobs created over a year. *Philippines Star*. Retrieved from: <http://www.philstar.com/business;>

National Economic Development Authority. (2015, January 29). Statement by Secretary Arsenio Balisacan. Retrieved from: <http://www.neda.gov.ph>

¹⁰ Trading Economics. (2015). Philippines GDP annual growth rate. Retrieved from: <http://www.tradingeconomics.com>

However, most Filipinos are unable to participate in this new wave of economic opportunity, which represents a significant threat to the current peace and prosperity.¹¹ With current capital ownership structure, growth is accruing to a small portion of the population. It is estimated that the top 20% families in the country accounted for more than half of the Philippine national income, with the 50 richest families alone controlling 26% of GDP in 2014.¹² Even more striking, it is estimated that 50-75% of GDP *growth* is accruing to just 40-50 families. This is one area where the Philippines might prefer not to stand out - in a similar calculation for neighbors Thailand and Malaysia, it is estimated that the increase in income of the 40 wealthiest families was just 25% and 3.7% of GDP respectively.¹³

In sharp contrast, the poorest 20% of the population control less than 5% of GDP.¹⁴ In the absence of capital, labor is their primary resource. Education is clearly critical to improving labor productivity, and has many other well-established benefits, particularly for girls where it has been shown to improve a number of social indicators such as maternal and infant mortality.

However like capital, education and the corresponding returns remain elusive for many. Only 10% of adults in the Philippines have a university degree. Attrition rates are high: for every 1,000 students who start school, 650 complete elementary school. Of these, only 430 graduate from high school, 230 enter college, and only 120 will ultimately obtain a degree.¹⁵ Unsurprisingly, drop out rates are up to 13 times higher for poorer populations.¹⁶

With over 40% of the population living on less than \$2 / day and 25.8% living below the national poverty line,¹⁷ poverty makes the opportunity cost of education high for many families. Fueled by a necessity to earn income and plentiful unskilled employment opportunities at home and abroad, unemployment rates are lowest for those with no or just elementary school education.¹⁸

¹¹ New growth models: Challenges and steps to achieving patterns of more equitable, inclusive sustainable growth. (2014). *Global Agenda Council on New Growth Models*. World Economic Forum.

¹² Philippines: Critical Development Constraints. (2007). Country Diagnostics Study. Asian Development Bank. Manila.

¹³ Taruc, P. (2015, June 3). A tale of two economies: Exclusive growth in the Philippines. *CNN Philippines*. <http://www.cnnphilippines.com/business>;

Keenan, J. (2013, May 7). The grim reality behind the Philippines' Economic Growth. *The Atlantic*. Retrieved from: <http://www.theatlantic.com>;

Habito, C.F. (2012, June 25). Economic growth for all. *Inquirer*. Retrieved from: <http://opinion.inquirer.net>;

National Economic and Development;

¹⁴ Albert, J.R and Martinez, A. Jr. (2015, February 25). Are poverty and inequality changing? *Rappler*. Retrieved from <http://www.rappler.com>

¹⁵ United Nations Development Programme. (2009). *Philippine Human Development Report*.

¹⁶ Senior High School Support Program. Summary Sector Assessment: Education. Retrieved from: <http://www.adb.org>

¹⁷ Philippine Statistics Authority. Poverty Statistics Press Release. (2015, March 6). Retrieved from: <http://www.nscb.gov.ph>; World Bank

¹⁸ Montavlo, J. G. (2004). *Education, Poverty, and Development in the Philippines: From quantity to quality and beyond*. Background paper for the *Philippines Poverty Assessment*.

The returns to education are clearly also playing a role in the high attrition rate. Questionable returns can be linked to multiple factors, including the cost and quality of the education itself, the quantity, quality and compensation of jobs for graduates, as well as the aforementioned opportunity cost.

On costs, while public education is widely available, it is not free, with transportation, uniforms, supplies and meals costing students anywhere from Php 1,000-3,000+ per year.¹⁹ The government has rolled out tuition assistance programs to enable over 800,000 students to attend private schools, however reports suggest that families who participate in programs such as the Government Assistance to Students and Teachers in Private Education program still have to pay up to Php 5,000 per child, per year, out of pocket.²⁰

Even if affordable, the returns on the 12-16 year investment may be elusive to many Filipinos who cannot access high quality education. National Achievement Test (NAT) results have remained stagnant, with only slight improvement over an eight-year period²¹, and Philippine performance on the Trends In Mathematics and Science Study (TIMSS) reveal Philippines places near bottom of Southeast Asian nations in both math and science for grades 4 and 8.²²

Finally, while overall unemployment rates are low, it is highest among high school and university students, suggesting that skilled job growth is an equally important part of the equation.

Even where education is accessible and remunerative, many lower income and marginalized communities may not fully understand the returns and/or view it as achievable. Youth often follow the example set by elders in the family and community. As such, one may not aspire to pursue higher education if there are no role models in their immediate community to emulate. Lack of information can also have a huge impact on one's aspirations. Individuals among poor may not have access to information regarding affordable high school/universities, scholarship programs, or even about the process of gaining admission to a private high school or university. Simply not knowing about such opportunities limits one's goals and potential.

As a result of the capital, education and information disparity, inequality remains high. The Philippines is one of the most unequal among the Southeast Asian nations with a Gini coefficient 43.0 [2012] compared to Cambodia 31.8 [2011], Indonesia 38.1 [2011], Laos 36.2

¹⁹ Thomas, M. and Burnett, N. (2015). The Economic Cost of Out-of-School Children in Southeast Asia. *United Nations Educational, Scientific and Cultural Organization*. Retrieved from: <http://www.unesdoc.unesco.org>

²⁰ 809,000 private high school students receive government subsidy. (2014, July 18). *Official Gazette*. Retrieved from: <http://www.gov.ph>;

Carver, G. (2015, January). The Philippines: a public-private partnership for educational development. *Private Sector & Government Blog*. Retrieved from: <http://blog.private-sector-and-development.com>

²¹ Education for All 2015 National Review Report: Philippines. (2015). For further information, please contact: efa2015reviews@unesco.org

²² Maligalig, D. and Albert, J. (2008). *Measures for Assessing Basic Education in the Philippines*. Philippines Institute of Development Studies Discussion Paper Series 2008-16. Manila.

[2012], Thailand 39.4 [2010], Vietnam 35.6 [2012]. Even worse, in spite of GDP growth, inequality has actually increased over the past 30 years, up from a Gini of 41 in 1985.²³ The drivers of growth, which include technological progress, globalization and market-oriented reform,²⁴ do not appear to be benefitting the masses. All that said, this challenge is also the great opportunity for this generation – can the Philippines break the mold and set itself on a path of *inclusive* growth so that all Filipinos can prosper?

Improving labor productivity for those who only have labor is clearly a necessary, but not sufficient, condition to enable inclusive growth. With 50% of the population under the age of 24, if the right investments and opportunities are created today to maximize the value of their labor, one can impact the lifelong earning potential of a majority of the population.

Equally important is to ensure that growth is generating sufficient jobs, of sufficient quality, to ensure that the returns to education are there for those who make the investment. High growth in the labor-intensive services sector, and particularly the 19% growth of the Business Process Outsourcing sector, where the Philippines is now the world leader, are encouraging.²⁵ Over the near term, it may be that some of the most remunerative pathways for skilled labor continue to be abroad. An estimated 2.3mm Filipinos (5% of the total workforce) currently work overseas, remitting an estimated 8.5% of GDP in 2014.²⁶ These pathways are well established and provide flexibility and enhanced opportunity so that the country is not limited to the growth of its domestic labor market.

Finally, one additional factor for consideration in the Philippines is that efforts to reduce inequality should ideally focus on both socio-economic terms, as well as the geographic distribution of wealth. Metro Manila is the most densely populated city in the country, and is breaking under the burden of some 12mm residents, taxing infrastructure, environment and family integrity²⁷. Migration to Manila is high and it is easy to understand why – with 75% of the nationwide jobs in high growth sectors like BPO²⁸, and salaries that are 2.3x higher than the surrounding rural provinces²⁹, it is the most obvious way to access opportunity and participate in the growing economy. Situated between two active fault lines, surrounded by

²³The World Bank. (2014). *World Development Indicators*. Washington D.C.: World Bank.

²⁴ Zhuang, J., Kanbur, R. and Rhee, C. (2014). Rising Inequality in Asia and Policy Implications. ADBI Working Paper 463. Tokyo: Asian Development Bank Institute. Available: <http://www.adbi.org/working-paper/2014/02/21/6172.rising.inequality.asia.policy.implications/>

²⁵ Remo, A. (2015, March 19). IT-BPO sector posted 18.7% revenue growth in 2014. *Inquirer*. Retrieved from: <http://www.business.inquireer.net>

²⁶ 2014 Survey on Overseas Filipinos. (2015, May 27). *Philippine Statistics Authority*. Retrieved from: <http://www.psa.gov.ph>

Infographic: Where \$26.92 of OFW remittances come from.(2015, June 9). *GMA News Online*. Retrieved from: <http://www.gmanetwork.com>

²⁷ Republic of the Philippines National Urban Assessment. (2014). Asian Development Bank. Retrieved from: <http://www.adb.org/sites/default/files/publication/42817/philippines-national-urban-assessment.pdf>

²⁸ Mitra, R.M. (2013, September). Leveraging Service Sector Growth in the Philippines. *ADB Economics Working Paper Series No. 366*. Asian Development Bank. Retrieved from: <http://www.adb.org/sites/default/files/publication/30385/ewp-366.pdf>

²⁹ Meeting Urban Development Challenges. (2002). Discussion Draft. World Bank. Retrieved from: <http://siteresources.worldbank.org/INTPHILIPPINES/Resources/DB13-UrbanBriefing-June22.pdf>

water, and in the path of ~20 typhoons a year, it is imperative for so many reasons that we create a more transparent labor market across the Philippines, and encourage job creation in other regions like Visayas and Mindanao, so that Filipinos can more easily gain opportunities suited to their competencies, and those who would prefer to work closer to home, have the opportunity to do so.

The strategy: Visibility into human potential as a pathway to inclusive growth

Our approach to enabling inclusive growth in the Philippines seeks to measure and create visibility into these previously unobservable traits, and use this information to do three things: (1) enable smarter investments in educational and professional development, (2) create meritocratic pathways to improved educational and professional opportunities, and over time, (3) improve the efficiency, effectiveness and diversity of talent markets by matching the highest potential individuals to better jobs in an objective and merit-based manner. Dutifully executed, this should enable a more socio-economically diverse set of stakeholders to participate in markets, improve productivity and accelerate growth in an inclusive manner.

Our journey started with Knack, a pioneer in the predictive talent matching space who shares our belief in the power of human potential as a pathway to inclusive growth. Knack generously agreed work side-by-side with us to explore the potential for their technology to unlock human potential here in the Philippines (See Box 1 to learn more about Knack).

Box 1: An Introduction to Knack

Knack leverages behavioral science, gaming technology, machine learning and data analytics to measure and unlock human potential and to fundamentally change the human capital space. Knack's innovative technology harnesses the power of mobile games, which provide natural, immersive environments that allow people to showcase themselves in an authentic way, unencumbered by the barriers of bias, stereotypes and prejudices. With the increasing universal shift to mobile platforms and the appeal of games across cultures, ethnicities, age, gender, and socio-economic status, Knack's mobile games provide an effective way to remove bias and level the playing field.

As an individual plays the games, which measure how people behave and perform across different situations and dynamic environments, their gameplay produces a high-volume micro-behavioral data-stream. Using machine-learning algorithms, Knack uncovers patterns of gameplay data that identify individuals' strengths across different domains:



Knacks: personality traits (e.g., Conscientiousness), cognitive abilities (e.g., Logical Reasoning), social and emotional abilities (e.g., Empathy), and mindsets (e.g., Resilience)

Powerknacks: valuable competencies in social, business, and educational cultures (e.g., Cultural Intelligence, Leadership, Intellectual Curiosity)

Superknacks: career aptitudes across a wide range of occupations (e.g., Customer Service, Data Science, Finance)

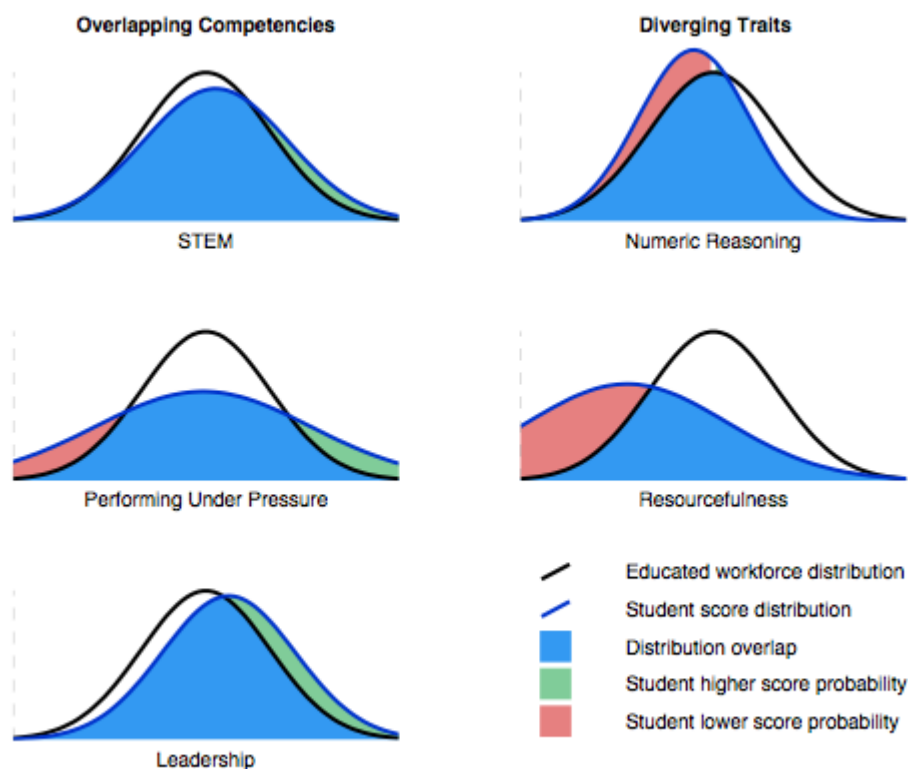
Ultraknacks: high performance potential for specific roles at specific organizations and/or regions (e.g., customer service representative at a particular company, financial analyst at a specific organization)

By targeting a broad range of traits and behaviors that relate to successful real-world performance, Knack matches talent to educational and career opportunities to help individuals thrive and communities grow. Knack recently launched the Billion Minds initiative, which aims to unlock the potential of the world's poorest individuals and create talent pipelines for businesses to access untapped high-potential talent pools. As part of this initiative, Knack and Friends of Hope have partnered to bring Knack's game technology to students and young professionals in the Philippines, who lack access to educational and professional advancement opportunities. The goal of this partnership is to map students' potential and connect them with the academic and vocational resources, mentorship, personal development, and networks they need to achieve long-term success.

We first sought to validate the accuracy of the Knack games in the Philippines and started collecting data from students and young professionals. Our initial wave of data collection

involved 200 public school students in 5th and 6th grade from Mindanao. The findings, detailed in Box 2, suggested that the students had a similar trait and competency profiles to employees at several Fortune 100 multinational firms, with the exception of lower numeric reasoning and resourcefulness. This was encouraging, in that it confirms the hypothesis that talent is evenly distributed. But it is also discouraging when one realizes that few, if any, of the children in our pilot currently have a shot at such professional opportunities. Like Juan de la Cruz (who was part of this sample), they will attend substandard schools. The motivated few that ultimately graduate from high school are unlikely to aspire for top universities, and even if they do, most will lack the financial resources, if not the preparation and record of academic achievement, to attend.

Box 2: Analysis of data from public school students in Mindanao, Philippines.



Curves on the left show the normally distributed Knack scores on key Powerknack competencies for the students (blue line) and a reference population of educated workers (black line). Large blue shaded areas highlight the large degree of overlap in distribution of talent between the two populations; Green shaded areas indicate where even higher potential probability can be found among the top students. Curves on the right highlight two specific traits, Numeric Reasoning and Resourcefulness, where the student distribution skews low and may benefit from intervention.

Committed to creating a better path for Filipino youth, we set out on our second wave of data collection in August 2015, which is ongoing and seeks to profile over 10,000 students and young professionals across the country. We are prioritizing data collection from public

schools as a proxy for those with lower income / access and have established partnerships with organizations with access to these populations, such as Teach for the Philippines, Friends of Hope, and various school feeding programs.

Smarter investments in educational and professional development

We hope to use this data to improve the human capital pool and expand aspirations and achievement of low-income students. To that end, we are working with behavioral scientists at Knack to identify traits that are high frequency drivers of success. These include:

- **Diligence:** The commitment and organizational skills to follow-through and complete tasks to set goals (e.g. quality, timing, budget)
- **Resilience:** The ability to overcome challenges and not surrender to failure in order to meet goals
- **Optimism:** The tendency to look on the bright side and find the good even in tough situations.
- **Self Control:** The ability to manage one's own behavior, stay level-headed, and consider all angles and information before taking action
- **Growth Mindset:** The belief in one's ability to learn, change and adapt to new situations, and grow over time
- **Integrity:** The tendency to value fairness, modesty, and sincerity in oneself and others and to seek to behave in a principled manner
- **Perseverance:** The determination to accomplish tasks or reach goals and to avoid distraction or course-changes along the way
- **Empathy:** The social ability to understand the emotional perspective of another
- **Resourcefulness:** The belief that one can find the path to accomplish any goal and the ability to utilize different resources can provide the mindset needed for success
- **Problem Solving:** The cognitive ability to think through a problem, determine potential approaches, and ultimately identify a solution is important for every role regardless of level, industry, region, etc.

This list of traits provides a well-rounded view of what's needed for success: cognitive ability, social and emotional intelligence, mindsets and character traits. Each of these has been linked to success in the scientific literature and/or in Knack's analysis of job performance. An important point about this list is that an individual with these would not only have the mental agility, toughness, and commitment for a wide variety of work but would also have the social skills to interact well with others and the belief in themselves and their own abilities to provide them with the critical foundation for educational achievement or professional success.

Once we have individual data, we share it so that it can inform investments in educational and professional development. For younger students, the data will be limited to their top cognitive abilities, personality traits, or mindsets, to build an early appreciation of their core strengths. All children will get feedback on 5 traits, which will exclude any Powerknacks and Superknacks to ensure that there are no unintended consequences (e.g., favoring students

with more “knacks” or anchoring career aspirations at too young an age). For older students, they could access their full report, including Powerknacks and Superknacks, which would give insight into careers where they have a high potential for success, and/or the gaps that they would need to address to be successful in their intended profession or vocation.

We have already developed these reports as part of our initial pilot in Mindanao and are exploring a partnership with several school networks to develop a module to engage high school students in dialogue about their strengths, possible careers, the path to achieve their goals, in an effort to expand their opportunity horizon and to empower them to make better informed choices on future investments in their education and professional development. We also plan to partner with content providers who can share information with students on scholarships, training courses and degree programs related to their aspired professional engagement.

Finally, at a school level, we will provide aggregate data that identifies areas where the student population is either substantially advanced or behind to inform programming decisions. In parallel, we are aggregating research on the extent to which these traits are malleable at different ages, along with a toolkit of interventions that could be used to improve on the corresponding traits. Our partnership with Teach for the Philippines will focus on building out this toolkit and field-testing curricular or after-school modules that can be used to improve student achievement on lagging traits. Done well, this feedback loop has the potential to benefit all students in the schools where we engage.

Meritocratic pathways to educational and professional opportunities

While this data has the potential to help students across our schools, it can also be used in a more targeted manner to expand access - creating meritocratic ramps of opportunity for high potential populations.

To that end, we plan to launch a National Fellowship Program for students with low income but high academic potential. This program would identify top 1% of students who possess the potential for academic achievement based on a custom Ultraknack that we developed with Knack for the Philippines. This Ultraknack is designed to predict a person’s potential for academic achievement and targets personality traits (Grit, Growth Mindset, Motivation, Conscientiousness, Self-Control, Open-Mindedness) and cognitive abilities (Logical, Spatial, and Numeric Reasoning) that scientific research has identified as key predictors of high achievement. With this Ultraknack, we aim to identify high potential students and connect them with scholarship opportunities and other academic resources to create opportunity pathways for long-term education and professional achievement and socioeconomic mobility. Specifically, these students will be invited to apply for a 6-8 year Leadership Program that will: (1) connect them to scholarship support to attend better local high schools and leading universities, (2) provide them with a peer support group and a mentor as they navigate new academic and social environments, (3) offer them Internship opportunities with leading companies, which would offer students valuable experience, professional networks as well as opportunity to earn income, (4) place graduating fellows in roles with high upward mobility

at leading companies, as well as, (5) require annual service learning projects in their communities, instilling an early commitment to reinvest and give back.

This program will first and foremost increase educational attainment, socioeconomic mobility and lifelong earning potential of lower income individuals who would otherwise have been unlikely to have access to such opportunities. That in and of itself should reduce inequality, albeit on a small scale. However we also expect there to be substantial spillover benefits, including improve return on scholarship investment, as well as an expanded sense of possibility along with new social pathways for youth from historically unconnected communities who now have a role model for what those with talent and motivation can achieve.

We believe this will work as we are targeting high potential youth who have all the innate competencies to succeed with the exception of financial resources and/or awareness of their potential. This should maximize the return on investment for both funder and beneficiary. We have also carefully designed to program in consideration of the learnings from similar programs that both succeeded and failed – the scholarship addresses the financial constraint, the internship addresses immediate financial needs and opportunity cost, peer network maximizes retention.

We estimate that the per-student cost of such an investment would be in the range of Php 225,000-1,250,000 (US\$4,750-27,500)³⁰ total invested over a 6-8 year period. Although this is not a small investment, it is consistent with domestic vocational and technical training program costs, far less than the aforementioned investments that global companies are already making in diversity recruiting and professional development.

Beyond this initial pilot, we are exploring several other opportunities that could create meritocratic pathways for other students, including:

- **BPO workers.** Introduce talent analytics to BPO training program admissions to both widen the funnel of potential applicants (by proactively recruiting those with high potential) and improving the overall quality of the candidates and the likelihood that a match results in a long term productive career in the industry;
- **Entrepreneurs.** Provide mentorship and capital access for high potential entrepreneurs, with an emphasis on regional business growth to diversify loci of economic activity across the country;

Improving the efficiency, effectiveness and diversity of talent markets

Our longer-term goal is to help demonstrate and improve the efficacy of tools like Knack so

³⁰ Figures for annual high school tuition rates taken from low range private high school such as APEC schools (P26,100/year) and high range private high schools including Ateneo, La Salle, Assumption and Colegio de San Augustin (P85,000/year). Figures for annual university tuition rates taken from low range state university such as University of Philippines (P40,000/year) and high range private universities such as De La Salle (P225,000/year), University Santo Tomas (P120,000/year), and Ateneo (P170,000/year). Assuming Time horizons of six years and ten years based on student's completion of junior and senior high school (six years total) and university (four years).

that we can create a more efficient, effective and diverse talent market in the Philippines and beyond. We hope to demonstrate the potential through proof of concept, with another pilot that we have launched with Knack and Teach for the Philippines. This pilot will collect data from and analyze Teach for the Philippines teachers so that we can identify the underlying traits that define their best performers. We will then use this to proactively reach out to university students who have high potential as teachers to diversify their talent pipeline, as well as a selection tool to improve the quality of the Teach for the Philippines teacher population. We expect that beyond just hiring better teachers, this will ultimately translate to improved educational outcomes. Teach for the Philippines has an existing impact assessment partnership with the Abdul Latif Jameel Poverty Action Lab which should enable rigorous monitoring of the results and impact, positioning it as a highly credible case example for other employers.

The Impact: Philippines and Beyond

We are excited about the potential for our pilots to demonstrate applications of these emerging technologies and ultimately contribute to more inclusive growth in the Philippines. With 50% of the population under the age of 24, web-based technologies like Knack and their associated interventions with students and recent graduates are highly accessible and have the potential to reach a majority of households in the country. High accessibility is driven by three factors: (1) The population has high internet fluency / digital mindset - according to 2014-15 WEF Global Competitiveness Report, the Philippines is one of the best digitally connected countries among developing Asian nations³¹ and has the most engaged social media community in the Asia Pacific region; (2) Mobile penetration is high, with smartphone penetration projected to reach 50% in 2015³², and finally, (3) There are large and expanding investments in internet and broadband infrastructure that will only enhance the existing connectivity – including the launch of internet.org earlier this year.

Related to scalability, our question is not on relevance and accessibility, as much as the potential risks or unintended consequences inherent in any technology that seeks to match talent to opportunity. Taken to an extreme, could we find ourselves in the world brought to life in the movie *Gattaca*, where one's DNA at birth is used to define their educational and professional opportunities for life? Or more immediate, what if a family that can only afford to send one child to school compares reports of their two children and makes decisions on the basis of an emerging technology that will have lifelong consequences for the aspiration and earning potential of their two children. We believe that over the near term, the opportunities afforded by these emerging technologies far outweigh the risks, however we are taking special care in our implementation to minimize any foreseeable and negative consequences, such as limiting feedback to younger students.

³¹ World Economic Forum. (2014). *The global competitiveness report*. Geneva: World Economic Forum.

³² Ferraz, E. (2014, August 4). New student predicts smartphone penetration in the Philippines will triple by next year. *Tech in Asia*. Retrieved from: <http://www.techinasia.com>

There are billions of Juan de la Cruz' in the world, potential unrealized. In their never-ending quest for growth, companies will relentlessly search for the more productive employees. The only question is, whom will they find? Most people born into the middle and upper classes have the credentials, resources and relationships to make themselves visible in the global talent market. But companies, if not the world, will be far better off if we can enable Juan and his compatriots to participate. A bigger and better pool of talent. Better hires. Better performance. More growth. More *inclusive* growth. The argument is simple, clear and compelling. Join us on our quest to help Juan and billions of others to achieve their full potential and prosper.

Appendix A: Key Definitions

Drivers of performance qualification & Success	Definition	Example
Skills	Expertise, ability and capacity acquired through training or practice. May include cognitive, technical, or people skills.	Accounting, negotiations, ability to make coffee.
Assets	Resources that are useful and desirable, qualities that sets an individual or organization apart from another.	Relationships / networks, knowledge, financial resources, traits, experience.
Knowledge - Explicit	Codified, academic knowledge conveyed to others through formal communication dialogue, text and demonstration. Knowledge of manuals, documents, procedures.	Ability to find the solution of a differential equation.
Knowledge - Tacit	Know-how based on personal experience, practice and intuition that are difficult to communicate from one person to another and requires extensive, close-mentorship-like relationship for transfer. Made up of mental models, values and insights.	Trading stocks on the NYSE, Ability to craft a violin.
Traits	A distinguishing quality that makes one person or thing different from another.	Cognitive abilities, Personality traits, Social and Emotional Intelligence, Mindsets.
Cognitive ability	Mental processes related to knowledge, memory, and attention. An individual's ability to think, reason, and perform tasks.	Working memory, mathematical ability, mental object rotation.
Personality traits	Characteristics or qualities that form an individual's unique character.	Perseverance, extraversion/introversion.
Social and Emotional Intelligence	The set of abilities that allow an individual to understand social norms, emotional nuances, and group dynamics as well as interact effectively with others.	Empathy, reading emotions, building consensus.
Mindset	Mental attitude or disposition that influences one's responses and interpretations.	Fixed mindset versus growth mindset.
Competencies	Strengths and abilities; Combination of knowledge, traits and technical capabilities of an individual, or business, that enable them to have a competitive advantage.	Analytical thinking, risk management and assessment, innovation, flexibility.

Appendix B: Our Partners

Friends of Hope

Friends of Hope, Inc. is a non-profit organization dedicated to creating and investing in opportunities for all Filipinos to prosper. A pioneer in the social business space, our flagship program builds much-needed public school classrooms across the Philippines using 100% of the profits from “Hope in a Bottle” (HIB), a purified bottled water produced by our sister company, GenerationHOPE. Our investment priorities span a range of issues including education; entrepreneurship and innovation; and agricultural productivity and profitability.

Knack

Knack, a technology startup, combines state-of-the-art behavioral science, mobile video games, and machine-learning algorithms to unlock individuals' talents and traits and match them with education and job opportunities---all via games. Knack's pioneering talent-matching platform brings together businesses, schools and users, digitally connecting people with opportunities based on one's potential for success, rather than credentials. Knack's mission is to empower individuals of all walks of life, including those in underserved communities and regions, by helping them broadcast their talents, match with opportunities, and realize their potential through education, work, and entrepreneurship.

Teach for the Philippines

Teach for the Philippines is a non-profit social enterprise that identifies, develops, and supports a community of leaders working to end educational inequity. We recruit, select, and train promising Filipinos, regardless of their college degree or how long they have been working in a different profession, to teach for two years in public elementary schools throughout the country.