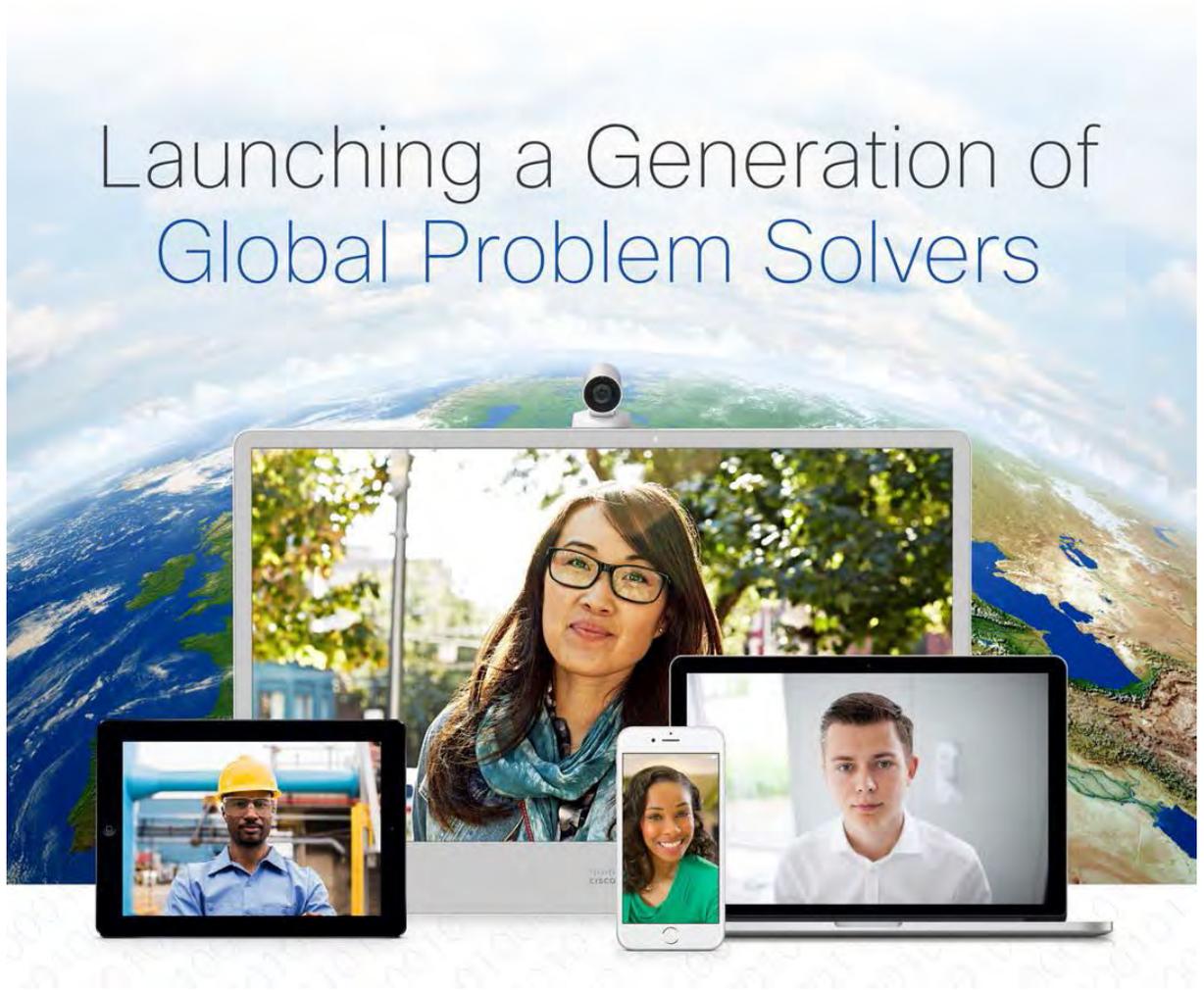


Launching a Generation of Global Problem Solvers

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Imagine a world of hyper-connectivity where information can help predict an asthma attack and a building can detect a gas leak and contain it. That world is here. That time is now. We are in the age of Digitization. In our digitized world, astonishing opportunities emerge when people connect, and Cisco believes the impact of digitization on society will be five to ten times greater than the impact of the Internet to date.

We can use digitization to help solve some of the world's most challenging problems— water scarcity, hunger, income inequality, environmental degradation, poverty, migration... and unemployment. Yet, with the wealth of opportunity digitization can bring, we live in a world of complex global challenges that deeply impact our society— from climate change to health and economic challenges. The challenge of unemployment looms large, especially among youth with an unemployment rate that is practically three times higher than that of adults.¹

Globally, 197 million people were unemployed in 2015, which is expected to increase by 3.4 million over the next two years.² In the U.S. alone there are 7.4 million unemployed with almost a third unemployed for six months or longer. At the same time, another 5.5 million people who would prefer to be working full-time found themselves forced to take part-time positions, either because their hours had been cut back or because they were unable to find full-time jobs. Add to this the estimated 500,000 people who have given up hope and are no longer looking for work, and the number of people who could be working full time but aren't is much higher than the published unemployment rate of 4.6 percent.³ In order for countries to thrive in this new digitized economy, not only will we have to address unemployment, but also job creation. The world will have to create 600 million jobs over the next 10 years, or 5 million a month, just to prevent the youth unemployment situation from getting worse.⁴

Technology alone is not enough. Education alone is not enough. The rapidly changing nature of jobs and the world as we know it require a comprehensive, adaptable skills-to-jobs approach, including job creation. Based on a successful global skills development program, an established track record of effective corporate social responsibility (CSR) interventions, and Cisco's proven ability to capture market transitions, we believe that a commitment to continuous learning with a strong basis in technology, entrepreneurial skills and mindset, combined with social mindedness, has become foundational to an individual's success. We believe we can harness the power of technology to launch a generation of global problem solvers who innovate like technologists, think like entrepreneurs, and act as social change agents.

Today, most people do not have access to training programs that would enable them to participate in the digital economy. 39 percent of employers say that a skills shortage is a leading reason for entry-level vacancies, yet 72 percent of educators believe graduates are adequately prepared for the job market.⁵ We need to increase access to training and base that training on employers' needs for skills and entrepreneurial skills to fuel job creation.

¹ ILO, WESO, 2015

² ILO, WESO, 2016

³ US Department of Labor, 2016

⁴ World Bank, 2015

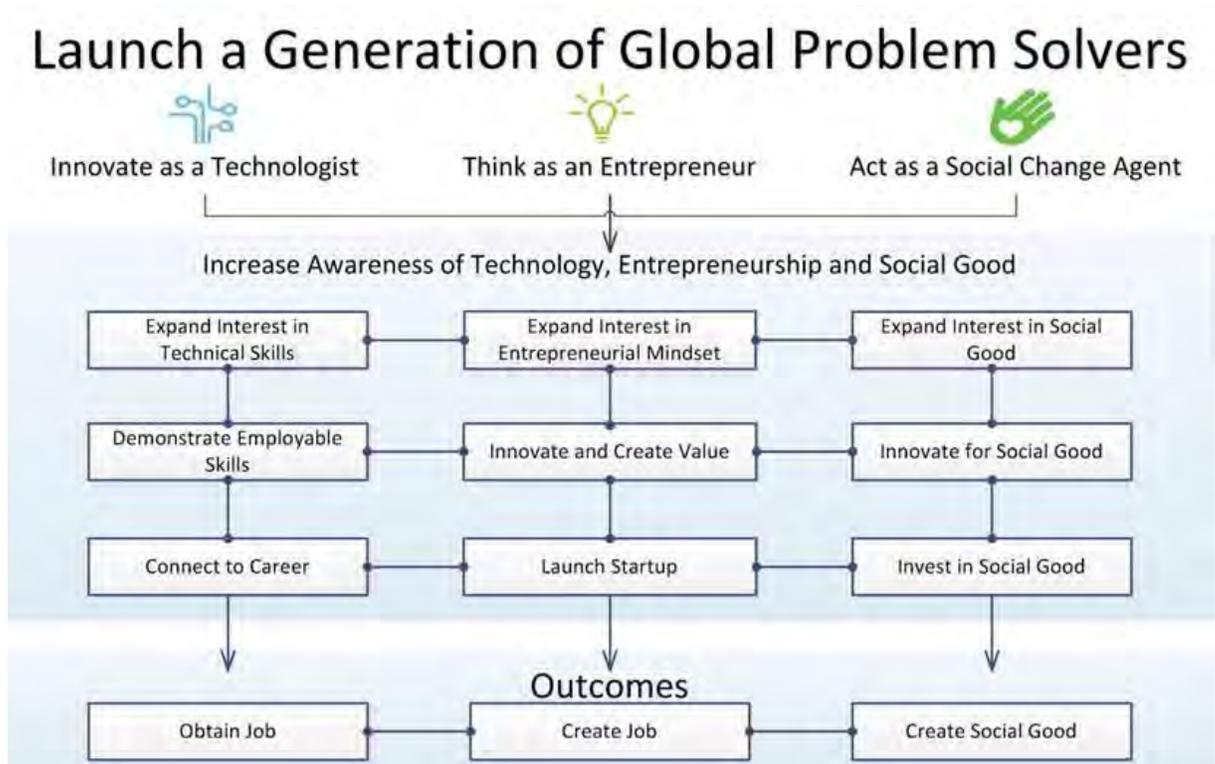
⁵ McKinsey, 2013

An estimated 280 million additional jobs need to be created by 2019 to close the global employment gap.⁶ We need to increase job creation.

Governments, companies, educational institutions, non-profits, and individuals working in isolation cannot solve the unemployment challenge. We need to work within the existing ecosystem to create regional strategies that develop the volume and specific skills and competencies required for countries to take advantage of the opportunities digitization can provide. Not only is this important to country development, it also provides a tremendous amount of opportunity for unemployed youth.

If it were possible to increase access to relevant skills training aligned to technology transitions such as digitization, as well as develop entrepreneurial skills and mindsets—while also fostering an ecosystem that spurs digital innovation—the impact could be exponential. See figure 1. Communities and companies would be able to realize the economic gains that digitization can bring through a skilled workforce that can innovate, develop, build, and maintain the systems required. We would also reap the benefits of enabling entrepreneurs to bring new ideas to market, some of which will have the added benefit of solving some of our most complex social challenges.

Figure 1. Launch a Generation of Global Problem Solvers



⁶ ILO, WESO, 2015

Working at the Pace of Technology



Digitization will accelerate the pace of change, so new approaches will be required to develop unique skills and competencies in the volume required. Ultimately, if we can harness the power of the rocketing digitization phenomenon and align education, curriculum, and learning to the technology job market, while driving entrepreneurship, digitization will fuel economic growth. We partnered with Gartner Research to enable us to better understand the landscape of skills and jobs in the digitization environment and inform our approach moving forward. Growth in digitized devices will far exceed smartphones, tablets, and PCs, which are expected to be 7.3 billion units by 2020,⁷ and there will be 4.5 million entrepreneurs, innovators, and developers working on projects related to digitization.⁸

Technology will play an increasingly important role in business. Technology will create an unprecedented revolution in the way we work, dramatically changing jobs within almost all organizations. Gartner has identified ten job families⁹ as critical for digital applications and services that are expected to represent approximately 75 percent of the needed full-time equivalents in 2020.¹⁰

Roles will become more complex and to be successful, individuals will need a balance of depth in key skills such as data analytics, security, device management, and application development and softer competencies such as creativity, innovative design, and entrepreneurship, while broadly understanding the business environment in which that individual works.¹¹ A growing number of CIOs today see a need to completely “overhaul” talent, which increases as digital innovation accelerates and becomes the source of competitive differentiation.¹²

Whether it is connected education and healthcare, smarter cities, or more efficient government services, the sheer amount of connections will not only drive business improvements, but also play a key role in solving our most critical social issues.

⁷ Gartner, 2014

⁸ Vision Mobile, 2014

⁹ Gartner, 2014

¹⁰ Gartner, 2014

¹¹ Gartner, 2014

¹² Gartner, 2014

Building Upon Our Learnings



Cisco is committed to helping individuals gain the skills needed to take advantage of the opportunities in the new digital economy. Through the years, we have engaged in field research and learned from our interventions to understand their impact and build upon our learnings. We partner and invest in CSR programs in the areas where we can add the most value and have a significant impact. To this end, Cisco and the Cisco Foundation partner with nonprofits, non-governmental organizations (NGOs), and community-based organizations to carry out many of our CSR programs. We support organizations that share our vision with funding, expertise, and technology. For example, Cisco identifies partners with innovative, technology-based programs that improve student performance and engagement particularly in science, technology, engineering, and math (STEM) studies in underserved communities. Cisco also works with NGOs to promote economic self-sufficiency by bringing technology to underserved populations and providing access to information, skills, and financial products and services.

Our flagship CSR program, the Cisco® Networking Academy® has been a successful model for innovation in technical education. Rapid growth over the past decade has demonstrated the program's versatility in terms of student diversity, number and variety of partners, breadth, relevance and consistency of curriculum, and the ability to keep pace with new technical and pedagogical advances. Taking a step beyond traditional classroom learning, Networking Academy students have access to sophisticated simulation tools and can test their skills and know-how through global competitions.

To harness the potential of digitization, the world needs millions of people to fill information and communications technology (ICT) jobs in every country, in almost every field. Our Networking Academy program partners with more than 9,600 institutions that teach digital skills to more than 1 million students each year in more than 170 countries, thus providing greater economic opportunities for individuals and building a pipeline of innovators for the future workforce. Critical IT careers¹³ are becoming more complex as a result of the digital revolution where smarter connections are being made between people, processes, data, and things.

Partnerships accelerate transformation and innovation by allowing multiple stakeholders to bring their expertise to the table. Cisco Networking Academy not only prepares students for Cisco technical certifications, but also delivers a range of technical and business skills that support students as they further their education, prepare for work outside the ITC field, or start their own businesses.

¹³ Digital Security and Privacy, Device Management, Network Management, Applications Development, Digital Business Integration Engineering, Systems Integration, Systems Operations, Business Analytics, Product Design and Experience, Digital Business Architecture

In Networking Academy courses, students not only learn the finer points of designing, building, and operating networks, they also learn about problem solving, critical thinking, collaboration, and teamwork—skills they can apply in their future education and on the job. In an effort to closely align course content to existing ICT-related jobs—a task that has become increasingly difficult as the field has evolved and jobs have become more diverse and complex—Networking Academy has commissioned a number of studies and analyses aimed at understanding what skills, sub-skills, and prerequisites are necessary. The program also seeks to determine the quantity and distribution of these jobs in the global marketplace, and how employment skills and requirements may vary by employer, region, and market maturity

In addition to matching curricula to employment skills, Networking Academy also aligns instruction closely with Cisco and other industry certifications to minimize discrepancies between educational preparation and professional certification. The program strives to validate skills learned in the courses, through rigorous assessments and alignment with industry certifications. By the same token, Networking Academy adheres to industry-wide standards and best practices, ensuring portability of the skills learned in the classroom. Automation, simulation, psychometric models, and other techniques ensure the effectiveness of the instruction and provide a basis for substantive improvements. Students also receive personalized feedback so they can monitor their progress.

By adopting a results-driven approach that draws on established business principles and the latest technologies and research, Networking Academy has succeeded in implementing innovative educational practices that effectively serve the needs of a broad spectrum of students and institutions, and also serve as a model for other education programs as they undergo necessary transformation. Between 2005 and 2014, this program has helped 1.4 million students obtain new jobs. 70 percent Networking Academy survey respondents have found a new or better job, increased job responsibilities, or gained a higher salary because of their participation in the program.¹⁴

Cisco is actively building upon this program by continuously transforming our curriculum for the next wave of skills to ensure alignment with the transition to digitization and developing curriculum for emerging technology careers. We are now infusing IoT and security throughout our curriculum. We are introducing accelerated pathways designed with employers. We are engaging with educators, industry leaders, and social change makers to rapidly co-create curriculum, experiences and business models that set learners on a solid path to employment or job creation.

Cisco also supports technology solutions that help match skills to existing jobs. An example of this is an initiative supporting US veterans transitioning to civilian work. Veterans have strong leadership and teamwork skills, but when they retire from military service, their experiences are often difficult to match with civilian job descriptions. We work with Futures, Inc. to help veterans find jobs through a cloud-based platform called the Pipeline, which matches military skills to civilian jobs. Active-duty military personnel, reservists, and veterans can access the job-matching tool through the U.S. Military Pipeline. From January 2013 through June 2015, more than 250,000 veterans and military personnel found work through this initiative.

¹⁴ Cisco, student outcome report; the methodology used for the Networking Academy job extrapolation analysis (post stratification weighting) is a standard methodology used by Penn State and other research institutions. The main purpose of the methodology is to take standard survey results and compare the results to full population on key characteristics to determine representativeness. This produces an estimation of sample accuracy and these estimates can be used to produce a weight that accounts for bias in the sample in order to accurately extrapolate to the population. For our analysis, this process was done in multiple ways to come up with the most accurate, but also conservative estimate of new job obtainment.

Creating Opportunity



In addition to building the skills needed for the jobs of today and connecting individuals to these jobs, it is imperative to foster entirely new ideas and industries that will create the jobs of tomorrow. Job creation will play a crucial role in addressing the global unemployment challenge, including jobs created within both commercial and social enterprises. The average year over year growth of the fastest growing 100 social enterprises is 951 percent.¹⁵

Cisco seeks to harness the power of the burgeoning global, technology-based, do-it-yourself movement, with people of all ages inventing, designing, and often making their creations by introducing this way of thinking to the Networking Academy community and other programs. In this age of innovation, anyone can be an inventor. Their potential impact on the world is enormous. Thanks to affordable technologies and online environments, individuals can launch small companies to manufacture and market their goods and services. Making is influencing the way we learn, shop, sell, and interact.

Providing access to hands-on labs that spur innovation to a subset of Networking Academy students and others around the globe, as well as sponsoring digital innovation challenges targeting the broader community, would further enable individuals to demonstrate their new skills while developing solutions that can lead to new businesses and ultimately change the world.

Start-up businesses create more than 3 million jobs on average each year in the United States alone,¹⁶ but approximately 50-95 percent of start-up businesses fail depending upon the source.¹⁷ Incubator programs, however, increase the likelihood of success of start-up businesses by helping entrepreneurs turn good ideas into viable market solutions and accelerate the time to market of the product or service.

¹⁵ RBS SE100 Index, 2015

¹⁶ <http://www.kauffman.org/what-we-do/research/firm-formation-and-growth-series/the-importance-of-startups-in-job-creation-and-job-destruction>

¹⁷ According to Startup Genome Report, 9 out of 10 startups fail. They estimate that exact number to be 92% - access to the report ([LINK](#)) and a Quora article on that topic using Startup Genome as reference ([Quora article](#)); Similar statistic repeated on Mashable ([Article](#)); According to Forbes, this statistic is 80% ([Article](#)); According to US

“We have seen time and time again that a majority of startups fail. The common pitfalls can be remedied and their success rate improved, if [entrepreneurs] were given relevant competence development (skills), relevant access to funds and relevant access to a market place network. This is where good university business incubators come in—by supporting their clients on all these fronts thus improving their survival and growth probabilities,” according to Dhruv Bhatli, Co-founder and Director of Research at UBI Global

Historically, university incubator programs have been a successful model to fuel innovation and job creation globally. Specifically, top-rated university incubator programs create almost five times more jobs than average university incubators.¹⁸ Incubators are able to create more jobs by successfully supporting their client start-ups. Incubator programs, however, can be very exclusive; not all regions and universities, much less vocational colleges, have access to these types of programs.

Today, there are as many as 4,400 university incubator-related programs around the world, but there are an estimated 22,000 universities—only 15-20 percent of universities have incubator programs.¹⁹ Now, imagine if we connected those incubators together in a virtual network to share best practices and collaborate more effectively, and then increased that number by even 5 percent. On average, each incubator is able to create 350 jobs a year; this could lead to more than 8 million jobs over a 5-year timespan.

Cultivating a global incubator network would help people from all backgrounds bring creative ideas to market and launch startups that generate more jobs while also aligning to the growing interest among youth for entrepreneurship. 55 percent of millennials (18-34 years) either want to start a business or have already started one.²⁰ Additionally, a focus on socially minded businesses and ideas is in line with the growing belief that a company’s purpose should not focus solely on shareholder profit, but also consider how it is impacting society and the environment. Today, only 6 percent of the global population believes a company should only focus solely on profit.²¹

Cultivating a socially minded, global incubator network could be even more powerful. Social incubators not only produce positive economic value, but can also help solve some of the world’s most pressing issues. To validate this belief, we partnered with UBI Global, a leader in incubator benchmarking, to co-develop the first benchmark framework for social incubator programs.

Based on UBI’s existing global benchmark framework, a new social incubator framework has been co-created to measure social incubators on both economic and social impact. Over 40 key performance indicators (KPIs) are measured in the framework, which also includes metrics for the value these incubators are providing for their clients, including competence development, access to networks, and access to funds. We have found that top-performing social incubators in the United States produce almost three times more jobs than average performing social incubator programs. To learn more, please visit: <http://csr.cisco.com/pages/measure-impact>

Imagine the number of jobs that could be created if all socially-focused incubator programs improved. Imagine if, this incubator network reached new target audiences—individuals that may not have had access to these types of programs previously. Imagine what new ideas might arise and flourish as a result. What if the ecosystem surrounding the incubators included institutions that provide individuals with cutting edge technology skills? What if the ecosystem included organizations that develop leadership skills? NGO’s tackling poverty? Non-profits focused

¹⁸ UBI, 2014

¹⁹ UBI

²⁰ Kauffman, 2011

²¹ 2013 Cone Communications and Echo Global CSR Study, 2013, <http://www.conecomm.com/2013-global-csr-studyrelease>, accessed June 2014

on encouraging youth to pursue science, technology, engineering and math—creating an even broader pool of inquisitive minds ready to innovate?

There is no telling where the next great idea can arise. By providing individuals with multiple pathways and resources to find work and/or foster ideas that create jobs while simultaneously addressing social challenges, the impact could be exponential while also playing a significant role in addressing the unemployment challenge.

We know that if we bring people together, they find innovative solutions; if you add technology to the mix, we can multiply their impact and uncover even greater opportunities. Together, we have the power to inspire, connect, and deliver upon new opportunities and rich experiences by cultivating an ecosystem that can open doors to innovation and progress while growing global economies and increasing well-being. The time to act is now. Are you ready?



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