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A Global Skills Shortage: Myth or Reality?

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Source: 2011 *Manpower* Talent Shortage Survey

Evidence Supporting a Skills Shortage

Manpower and Price Waterhouse Coopers (PwC), two multinational consulting and professional services firms, study the shortage of skilled workers. They find a general talent shortage worldwide. According to Manpower's 2012 Talent Shortage Survey, 34% of employers globally experience difficulties filling posts, with the most extreme case in Japan with 81% of surveyed employers reporting difficulties (Manpower 2012a: 4). The top two sectors that need qualified employees are skilled trades and engineers (Manpower 2012b). The survey was distributed to 40,000 employers in 41 countries. Companies noted a dearth of applicants and a general deficiency of technical skills as the main reasons for not being able to hire (Manpower 2012b). Nearly half of the employers in the United States are unable to fill critical positions, especially skilled trades, engineers, and IT staff (Manpower 2012b). In Pricewaterhouse Cooper's Global Survey of CEOs 2012, 25% of respondents were unable to follow a market opportunity or had to delay a strategic initiative due to talent challenges (PwC2012a: 20). Additionally, 33% claim that skills shortages affect their company's capacity to effectively innovate (PwC 2012a: 20). The retirement of Baby Boomers remains a concern for employers as companies try to transition from a stable, knowledgeable workforce to a new crop of younger workers. Even employers from countries that suffer from the debt crisis, such as Greece, cite a 25% vacancy rate of positions that cannot be filled due to insufficient talent (Manpower 2012a:4). Companies from around the globe are reporting negative impacts on their profitability and delays in expansion due to the talent gap.

Figure 1

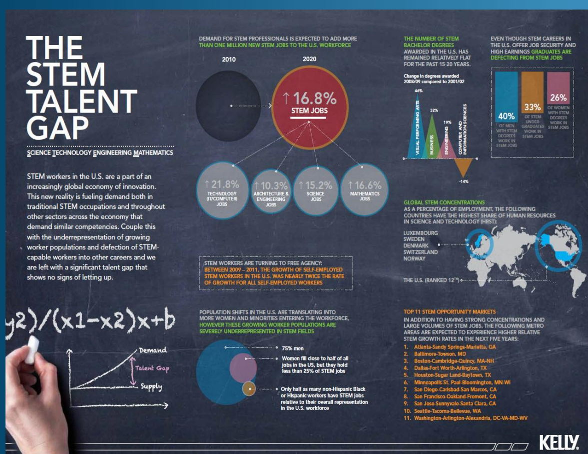

Figure 3: This illustration presents a well-rounded global overview of the STEM skills shortage.

Governments have attempted to alleviate skills shortages by supporting educational institutions in domestic industries that lack talent. They also sponsor vocational programs that train and retrain workers. However, these investments in education do not always have the intended result. For example, while the United States grants more than half of its engineering and computer science doctorates to foreign students, many of these students return to their country of origin after graduation (Craig, et al 2011: 4). Germany and its apprenticeship programs present another instance of business-education-government interaction. Though the focus on skilled tradesmen and enrollment in vocational and technical programs continues to decline, the German government has maintained its strong tradition of support for these practical programs.

Abstract

Globally, employers within the science, technology, engineering, and mathematics (STEM) fields desire to hire skilled talent, but have difficulty locating and attracting it. In short, they complain of a talent shortage. But is this assessment accurate? Do the world's labor markets suffer from a shortage of STEM skills or rather a skill mismatch, with a shortage in specific regions while other regions experience an overabundance of skilled workers? Consulting firms like Price Waterhouse Coopers and Manpower provide empirical evidence in favor of the talent shortage. These firms' aggregate survey data show that the "talent crunch" slows innovative capacity and profitability. Then again, other firms like Accenture conclude that no such shortage exists. Instead, the key is knowing how to locate and access talent to circumvent this location mismatch. Accenture foresees a rapid increase in STEM talent from developing economies like Brazil and China in the coming decade. Developed countries like Norway that heavily rely on STEM talent are taking the matter into their own hands. The Norwegian government is designing programs to attract more students to STEM disciplines and organizes events to attract international labor. Norwegian companies provide incentives to their employees to recruit skilled employees through their social networks. Perhaps national strategies are some of the most effective ways to address this important labor issue. In addition, labor market intermediaries such as Monster and Experia have emerged to connect global talent to markets where their skills are needed. The perception of a skills shortage exists and is affecting global business's current strategies and future plans. Whether a skills shortage truly persists or not, the future requires a workforce transcending national boundaries, where talent and jobs are made geographically compatible.

A Skills Shortage as Perceived by Global Business

Both sides of the argument are supported by empirical and statistical evidence, but who is right? Companies will continue to announce a skills shortage until they find the right candidates to fill their vacancies. Accenture says that this is due to their relative immature experience with the global labor market (Craig et al. 2011: 7). Employers argue that they lack people with the right technical knowledge and personal traits. However, Manpower also explains this deficiency, saying simply that a lack of applicants in the local labor market is the overarching structural issue in the Americas and the European region (Manpower 2012a: 8). Businesses complain that applicants lack experience, are untried and untested, and deficient in certain hard skills or technical competencies. These corporations refuse to hire workers who do not anticipate staying with them long term or show lack of dedication and commitment. Paired with the global recession, it is understandable that companies are apportioning their resources more guardedly (Manpower 2012a: 2). Ironically, Manpower suggests that those companies that invest wisely in talent and expertly manage it will have a competitive advantage in the near future (Manpower 2012a: 3). Skilled workers who possess in-demand skills are more discriminatory in their employment decisions, which cause companies to put more stress on their recruitment and retention initiatives (Manpower 2012a: 2).

Thus, companies may realize that leaving positions vacant only saves money short term while having negative impacts on the future of the company.

It seems that global businesses, corporations and companies widely accept the idea of a skill shortage. They take action in many different ways to mitigate the effects of the talent shortage. While each company individually takes steps to address the problem, what may be needed is a wider network of information sharing to better understand the global labor market. Many employment agencies and consulting firms already profit from the need for such workforce solutions. However, perhaps this more comprehensive, open view of the issue would allow for industries to internationally coordinate the need for skilled workers, communicating with one another to avoid talent crunches in the future. It is undeniable that shortages in the STEM fields have been present in North America and Europe in recent years, but it is also true that highly qualified graduates from the United States, China, India and other countries possess the knowledge and expertise to lower the talent gap.

Actions by Global Business to Address the Skills Shortage

Companies implement various strategies to attract global talent, as previously discussed. Wise corporate leaders are doing something about it, and we increasingly see that they're developing workforce strategies and partnerships with local educational institutions to train their next generation of workers (Manpower 2012b). This strategy is used by Google, which opened a branch near Tsinghua University in China to handpick recent graduates from the Chinese equivalent of MIT. In addition, the IBM International Foundation created a six year high school called P-Tech in New York City which awards a diploma and an associate's degree in computer science. Deloitte, another consulting firm that believes in a skill mismatch rather than shortage, is a big proponent of these clustered "innovation investment zones" (Eggers and Hagel 2012: 26). It argues that companies' policy agendas need to highly emphasize talent. Sharing resources and co-conducting research with academic institutions full of STEM talent are viable means to this end (Eggers and Hagel 2012: 27). Employees regard the retention of this young talent as an important goal.

Another approach has been to utilize talent *within companies*. In particular, companies train lower-skilled workers, known as upskilling, or compensate employees who recruit talent on the companies' behalf. Pricewaterhouse Coopers notes that CEOs are more focused on recruiting local talent and developing employees' skills rather than recruiting abroad (PwC 2012b). They note that two-thirds of the CEOs they surveyed in 2012 said that it is more likely that needed talent will come from in-house promotions over the next three years (PwC 2012a: 24). Manpower confirms these findings, reiterating that "employers are addressing their talent shortages by upskilling current staff and promoting staff who demonstrate the potential to grow and develop" (Manpower 2012a: 3). Texas Instruments has compensated its Indian employees to convince their skilled connections in Bangalore and elsewhere to work for TI in Dallas (Schiller and Caglar 2011). This method of recruiting is relatively inexpensive, considering the alternative of hiring an outside consulting firm, and seems to benefit all parties involved.

Other initiatives to "bridge the talent gap" and avoid future skill shortages include moving business operations to areas with available talent, send experienced employees to newer markets, partner with similar organizations abroad, and make significant technology investments (PwC 2012b).

Evidence Disproving a Skills Shortage

Accenture, a global management consulting, technology services and outsourcing company, acknowledges a skills shortage especially in the STEM fields. "Many experts have raised the alarm to highlight looming shortages of such talent, raising the possibility of a diminished capacity for innovation and slower growth. But Accenture research shows that the supply of STEM talent is growing rapidly. The key is learning how to find it (Craig et al. 2011: 2)." On their account, talent exists all over, but the burden to seek and access it rests with employers. PwC agrees that a talent crunch is taking place, where the highly educated and mobile 'Millennial' generation still struggles to find gainful employment (PwC 2012a: 20). Manpower also disagrees with the argument that talent shortages continue to inhibit business's aims. They say that the idea of a talent shortage "defies prevailing logic, especially when viewed against the high levels of unemployment in many economies – particularly among young adults (Manpower 2012a: 2)." Accenture notes that a location mismatch exists rather than a skills shortage because of a deficiency of crucial institutions that balance demand and supply of STEM skills across the globe (Craig et al. 2011: 2). This institutional deficiency issue is twofold, consisting of an information problem (knowing where skills are located) and an access problem (gaining access to known skills) (Craig et al. 2011: 7). Businesses need not struggle to find qualified skilled workers if these issues are addressed

Figure 2

Demand for STEM skills is projected to dramatically increase in the coming decade, with STEM occupations nearly doubling all other occupations in projected growth rate (Craig et al. 2011: 3). Fortunately, emerging market economies are prepared to supply this demand, with Brazil, India, and China offering an expected 88% of the world's STEM talent in 2015 (Craig, et al 2011: 5). In 2011, China graduated 600,000 engineering students per year. Second to this world-leading graduation rate, India's rate was 350,000 per year. In comparison, the United States graduated 70,000 engineering students in the same year (Iseek 2010). For perspective, today, about 41% of all degrees awarded in China are STEM degrees whereas the United States can only claim 13% (Iseek 2010). However, the quality of education and worker output in the United States remains much higher when compared to developing countries such as China and India. Surveying nearly 80 representatives of close to 60 companies involved in engineering and outsourcing, Vivek Wadhwa shows significant disparities in skill. 87% of survey respondents said that U.S. workers were more or equally productive, while 98% said that the quality of work in the U.S. locations was higher than abroad. Wadhwa's 2009 findings show that American engineering educations produce more productive and higher quality workers with more market knowledge than China and India. However, Indian and Chinese workers are less costly and willing to work longer hours (Wadhwa 2009). Regardless of the quantity versus quality debate, the stage is being set for a global talent grab.

Norway: A Case Study

Figure 4: Almost a third of Norway's wealth comes from its offshore oil and gas industry

Norway is one of the many countries around the world that is looking to attract global talent in the STEM fields. This Scandinavian country excels in the oil and gas industries, and its companies recruit international engineers and information technology (IT) specialists. The Norwegian government and companies heavily promote domestic education in these nationally vital sectors.

Norway has a historical record of low unemployment, yet in recent years it has also experienced a skills shortage (Norges Bank 1999). In 2012, 17% of Norwegian employers reported having difficulty filling jobs (Manpower 2012a: 4). Though this shortage is only half the global average, the majority of this shortage falls in two vital national sectors that need STEM talent. As mentioned before, Norway needs engineers, especially mechanical, electrical, and civil engineers (Manpower 2012a: 5). Half the members of NITO, Norway's largest union for engineers and technologists, reported engineering shortages that resulted in lost contracts and unqualified workers taking vacant slots (Digre 2011). Only 15% of tertiary students in Norway graduate annually in technical fields like math, engineering, and manufacturing compared to the OECD average of almost 25% (OECD 2012: 356). Because a high percentage of Norway's total employment includes STEM occupations, this educational deficiency exacerbates the skills shortage (OECD 2012: 358).

While the STEM shortage plagues world economies, Norwegian actors have taken steps to curb the talent shortage. For instance, the Oslo Global Mobility Forum focuses on attracting talent to the country and ways to make Norway a more internationally friendly and open place. EnergiNorge has encouraged and made more accessible domestic vocational programs and apprenticeships, enrolling a record number of students in 2011(2012). Dresser-Rand, another energy company, offers 30,000 NOK (about $5000) to each employee who recruits a new engineer to the company (Rokeberg 2012). CEO Odd Guldsten says that this method is cheaper and more effective than hiring an outside recruiting agency because current employees know which potential engineers would be a good fit for the company (Rokeberg 2012). Norway's Science for the Future Strategy has raised educational standards and aims to graduate more students with mathematics, engineering or information technology degrees (OECD 2012: 358). The country's responsiveness to its internal labor needs shows that Norway has become globally aware and sensitive.

Figure 5: An advertisement from Statoil, Norway's largest oil corporation, that calls for global STEM talent

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