FIELD Report No. 17: Skills for Jobs for Growth

Effective Human Capital Development in a Changing World of Work

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"So how do you change paradigms? You keep pointing out the anomalies and failures in the old paradigm. You keep speaking and acting, loudly and with assurance, in the new paradigm in places of public visibility and power. You don't waste time with reactionaries; rather, you work with active change agents and with the vast middle ground of people who are open-minded."

– Donella Meadows, Thinking in Systems

This publication was prepared by Monika Aring of SkillNations for FHI 360 and Lara Goldmark of FHI 360, through the FHI 360-managed FIELD-Support LWA. Find out more about FIELD-Support LWA at www.microlinks.org/field-support

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This paper is the result of extensive conversations, literature reviews, and web research. The paper builds on Monika Aring's more than 35 years of experience assessing success and failure and working to help countries, corporations, small businesses, NGOs, educational institutions, and municipalities improve their workforce development programs in over 40 rich, middle-income, and poor countries, as well as Lara Goldmark's experience teaching, writing, and implementing enterprise development, workforce, and policy reform programs in Latin America and North Africa.

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Introduction

Youth unemployment is a problem that has reached crisis dimensions in the Middle East and North Africa, and a phenomenon of worrying magnitude almost everywhere else. Yet employment, writ large, has always been a primary concern of governments: fifty years ago, a survey of economic policies in nine Western countries put "full employment" at the top of the list of objectives.[1] Governments have never had an easy time creating jobs; traditional policy instruments have always been quite limited[2] and today's political, environmental, and economic context only makes it harder. The private sector, meanwhile, is the source of most jobs—and as all managers intuitively understand, enterprise growth is closely linked to success in finding and nurturing productive workers.[3]

After demographic trends, the most commonly cited explanation is the "skills mismatch." After all, 20-90% of employers in most of the world's regions say lack of skills is an obstacle to their growth.[4] Meanwhile in the majority of developing countries, state-sponsored higher education and training systems are notorious for their inability to respond to, or anticipate, market signals. Below, we argue that the problem goes deeper—the mismatch is a symptom rather than the problem itself.

In this paper we explore workforce development, or human capital development, as a field of its own, encompassing education systems, economic development policies and programs, and corporations' human resource functions. Without this broad definition workforce development gets "stuck" at one or the other end of the spectrum, leading to less effective outcomes. For example, workforce development has for years been treated as a 'poor cousin' on the education side of the family. As a result, projects to improve the workforce tend to ignore the critical role played by employers. However, best-practice countries demonstrate that as consumers of an education system's graduates, employers can get the skills they need if they are actively involved in a dialogue with educators. At the other end of the spectrum, workforce development shows up in economic development programs as a way to strengthen value chains, improve cluster performance, or enhance corporate productivity. These are legitimate purposes, but if the training interventions are isolated from the education system, much of the knowledge is lost.[5]

We argue in this paper that workforce development programs must be aligned at the top—with economic development strategies; in the middle—with education systems and employers; and at the bottom—with the needs of particular target groups. We also affirm that the time has come to move

1 Kirschen, Etienne S., and Luciens Morissens (1965) "The Objectives and Instruments of Economic Policy." In Hickman, Bert G., ed. *Quantitative Planning of Economic Policy*. Washington, D.C.: The Brookings Institution: 111-133. Cited by Ulrich Ernst and Lara Goldmark in "The Jobs Challenge: Fresh Perspectives on the Global Employment Crisis." Developing Alternatives, Volume 15, Issue 1, Summer 2012.

2 Traditional policy instruments include direct public hiring; fiscal stimulus; subsidies and other incentives to boost private hiring; expanding the monetary base; trade policy and investment promotion; and structural policies, such as improving the business environment or investments in education and training.

3 In "The Coming Jobs War," Jim Clifton (2011) summarizes "the biggest body of behavioral economic data in the world on workplaces," from a 2010 Gallup study on productivity. The key finding is a statistical correlation between employees' perception of their condition and the business' future growth, including job creation. Gallup's employee engagement survey measures how employees perceive their interaction with the workplace ("I have the opportunity to do my best. My opinions count. There is someone at work who encourages my development. I have had opportunities to learn and grow.").

4 Aring, Monika. UNESCO Global Monitoring Report 2012 Online at unesdoc.unesco.org/images/0021/002178/217874e.pdf.

5 In a review of training investments of over 40 multinational corporations in developing countries in Asia, Africa, and Latin America, the author found that corporations spend billions of dollars training their workforce in those countries, but virtually none of that training spills over into the nations' education and training systems, including universities (World Bank, 2010, unpublished study).

beyond the traditional frames of reference that have historically dominated the discourse on employment. A forward-looking perspective is called for if countries are to rise to the jobs challenge: encouraging workplace flexibility; exploring new ways to connect—or even merge—school and work; and daring to discuss what policy measures might be appropriate for today's economic environment. We have constructed our arguments and selected examples with the following key premises in mind:

1) If jobs drive growth, and if skills drive jobs, then skills are a driver of growth.

2) Investing in education alone will not deliver a skilled workforce. In fact, it is precisely the non-education, non-public investments in industry, agriculture, infrastructure, and services that must be considered—with skills development calibrated to them and performed through them.

3) A successful human capital strategy is derived from a country's economic vision. Implementation of the two must be synchronized (or both will fail). They must be synchronized because education, employment, economic development and job seekers are linked to each other in a system. When the feedback loops between the various components of the system work, the system functions. When the feedback loops are broken or interrupted, the system cannot produce the desired result—a skilled workforce that provides jobs and economic growth and development.

This paper is organized as follows: In Section 1 we explore key trends and drivers in human capital development and employment, and propose a framework for an aligned workforce development system. In Section 2 we highlight the building blocks of effective human capital development systems by providing examples of best practice in countries where human capital strategies have worked (Singapore, Ireland, and Germany). In Section 3 we make recommendations for policymakers, business leaders, and practitioners seeking to develop effective workforce or human capital development strategies.

1: Trends in Human Capital Development

Trend #1: Types of work, and the skills needed to perform them, are continually evolving. The Manpower Planning techniques used in the 60's and 70's relied on an industrial model where workers are cogs in a wheel, quality improvements happen at the end of production, work is repetitive, individual instead of collaborative, where technology advances slowly, and skill needs are predictable and remain stable over time.[6] For example:

> "In the traditional Taylorist-Fordist organized automobile factory, everything was geared to prescribing the course of work to the last detail from above and beyond the "shop floor" level. Machine-pacing of work through the assembly line, standardization of work performance by the industrial engineering experts and direct monitoring by the line supervisors—this control structure did not tolerate self-regulation by the workers themselves."[7]

6 ILO. New Approaches to Manpower Planning and Analysis. Ed by P. Richards and R. Amjad. Geneva. 1989.
7 Jürgens, Ulrich, Thomas Malsch and Knuth Dohse. Breaking from Taylorism. Changing Forms of Work in the Automobile Industry. University of Cambridge. 1993.

With the advent of Deming's quality movement[8] in the late 80's workers became responsible for monitoring quality, participating in various processes that gave them far more autonomy. As robots replaced assembly line workers in the past 20 years, the old industrial model of skill development is being replaced by the need for integrated skill development systems that build as much capacity in knowing "how" to get work done with others, as knowing "what" needs to get done across different geographies and job functions.[9]

Over the past few decades, companies in developed countries made major advances in improving the productivity of jobs, automating wherever possible. Multi-national companies either have automated or are automating production to lower costs, improve quality, and deliver faster, while improving their corporate social responsibility performance in labor and the environment. For example, garment assembly has been a source of employment for the poor in many developing nations. However, with lean production techniques, the work of several hundred garment workers can be done by a few teams of four or five people who interact with a computer to design and produce the garment, taking less time and with fewer errors. Instead of being unskilled, these individuals need to have the technical and soft skills required for lean production.[10,11] The five workers interacting with a computer demonstrate what McKinsey considers interactive work—the engine of knowledge economies.[12] Interactive work constitutes the fastest-growing category of employment in developed countries and is the direction in which many developing economies will be moving into as they seek to attract better jobs via foreign direct investment. Unlike transaction jobs, for interactive jobs technology tends to complement, not substitute for jobs.

Based on their research, McKinsey identified three types of work:

1) **Interactions work** – work that requires exchanges involving complex problem solving, experience, and context (a lawyer or nurse);

2) **Production work** – process of converting physical materials into finished goods (factory worker or farmer); and

3) **Transactional work** – exchanges that can be scripted, routinized, automated, such as bank tellers, retail cashiers. (Auguste. McKinsey Global Institute. 2011)

Trend #2: Developing human capital requires systems behavior on the part of stakeholders.

Due to a greater diversity in the types of skills needed, and the pace at which employer skill needs change, stakeholders such as a Ministry of Education, or Labor, and a group of companies in a given sector, who might have been able to function in isolation from each other in the Industrial Age, now need to choreograph and align their actions to produce skills. This requires a view of workforce development where the different stakeholders—education, government ministries, employers, and job seekers—are interdependent parts of a system, or "ecology." In this ecology, government provides the

8 Deming W.E., edited by Orsini J. (2012). The Essential Deming: Leadership Principles from the Father of Quality. New York: McGraw-Hill.
9 Aring, Monika and Betsy Brand. The Teaching Firm. EDC 1998 and 2000. Online at https://secure.edc.org/publications/prodview.asp?1029.
10 Society of Manufacturing Engineers. SME - Lean Certification - Society of Manufacturing Engineers www.sme.org/lean-certification.aspx.
11 Aring, Monika. Nike in Thailand. World Bank and The Conference Board. 2008. Unpublished study.
12 Auguste B., Lund S., Manyika J., Mendonca L., Ramaswamy S. & Welsh T. (June 2011). An economy that works: Job creation and America's future. McKinsey Global Institute. Online at http://www.mckinsey.com/insights/employment_and_growth/an_economy_that_works_for_us_job_creation.

enabling environment that brings both education (supply) and employers (demand) together with other relevant stakeholders, such as trade unions, NGOs, and job seekers. Some best practice countries have even branded themselves on understanding this as a key to attracting higher value foreign direct investment, such as the Industrial Development Agency (IDA) Ireland's brand of "Team Ireland," to show potential investors that the country has an integrated, rapid response system in place to help companies get the skills they need.

Connecting Critical Disconnects—a Series of Interdependencies

What if workforce development went beyond training and education to build functioning systems by helping connect the disconnects in various labor markets around the world? We can learn from best practice countries that they have developed a way for the various stakeholders to connect and exchange information, operating in many ways as a team whose members have very different concerns, but who depend on each other for information that they need to make their part of the system work.

For example, educators depend on employers to provide them with information about future skill needs; employers depend on educators to develop people who have the required competencies; trade unions depend on employers and educators to make sure their members are trained as broadly as possible; government ministries of education, labor, youth, and commerce, all depend on each other and the other stakeholders to help them meet strategic goals, while job seekers depend on the stakeholders to make sure their investments in education and training will lead to sustainable livelihoods. This kind of teamwork can happen best when there is a national vision accompanied by an economic strategy and blueprint for action. In the process of helping a country develop a system, the process of identifying and bridging gaps is an area that is deserving of priority attention.

Trend #3: The public dialogue in relation to employment has changed dramatically in the past few years and will continue to evolve.

Traditional actors, content, and means of communication have gone out the window as youth connected by social media have taken to the streets to demand economic opportunity. Certainly demographic trends have helped bring employment issues to the fore in the global political discourse—in many developing countries, such as in Southeast Asia, the Middle East, and Africa, people under 30 make up more than half of the total population.[13] Less obvious, but just as noteworthy, is the lack of a modern, connected labor movement to bridge the gap between disenchanted youth, talent-seeking employers, and slow-to-reform governments. In the United States, union membership has sunk to less than 11.9%, comprised primarily of public sector workers.[14] Meanwhile, most workers in developing countries have never seen a contract, received benefits, or joined a union.[15] Notably absent from the myriad of policy and donor dialogues on youth employment is a serious effort to construct a more appropriate framework for discussion on labor issues—one which would reject the old mantra, "we must fight against exploitation!" and replace it with "you employers want productivity? Give us flexible working

13 Meanwhile, in many developed countries, baby boomers are retiring without young people who can take their place, creating an entirely different set of problems.

14 Goldmark, Lara and Karen Miller, "Flexibility that Works," in The Jobs Challenge: Fresh Perspectives on the Global Employment Crisis. Developing Alternatives, Volume 15, Issue 1, Summer 2012.

15 The ILO estimated in 2011 that in Africa 9 out of 10 rural and urban workers have informal jobs, which are disproportionately held by women and youth.

schedules, invest in lifelong learning, and compete for talent through a menu of optional benefits."[16] Scandinavian countries have long been acknowledged for ensuring that companies can fire when they need to, by offering citizens "flexicurity," a publicly-funded set of incentives to get those out of a job back into one. Lately, however, technology-focused companies in the US have begun to develop a new employer-employee compact. Today, avant-garde employers openly acknowledge that offering someone a job is not a commitment, on either side, to lifelong stability. Rather, tech companies such as LinkedIn, Amazon, and HubSpot are seeking to develop mutually beneficial *alliances* with their employees through measures such as: customized timebound assignments with built-in career counseling from one's supervisor; encouraging external networking, and alumni programs which explicitly assume that, while you don't expect a talented employee to stay at your company for life, you do hope to have gained a long-term ally who will continue to benefit the business even once he or she has left.[17]

> "You can't build an agile company with lifetime employment contracts. But you can create a better compact than 'every man for himself.' A workable new compact must recognize that jobs are unlikely to be permanent but encourage lasting alliances nonetheless. The key is that both the employer and the employee seek to add value to each other. Employees invest in the company's *adaptability*; the company invests in employees' *employability*." (Hoffman. Harvard Business Review, June 2013)

One may ask whether developed country "beyond-benefits" and McKinsey-style networking norms are relevant for employees of developing country firms. Mayyada Abu-Jaber, of the Jordan Career Employment Foundation (JCEF), has stories to tell that would imply, yes, incentives and the definition of a context-appropriate employer-employee compact matter a great deal. Practical, customized benefits such as a travel allowance, on-site child-care, or the ability to work at home, are the subject of several youth workforce initiatives in Jordan today. Abu-Jaber, JCEF's Executive Director, first came across this issue when conducting follow-up studies on disadvantaged youth who had been placed in jobs.[18] Those placed in less formal, smaller workplaces tended to be unemployed again a short time later, while those who entered larger structures tended to remain in their jobs longer. After investigating workplace conditions, Abu-Jaber came up with a short checklist for a positive workplace environment without which, she told small business owners, "We will not place our trained youth in your companies." Similarly, women working with JCEF in Amman have been known to request placement in jobs with a half-time schedule—so that they can adequately perform their daily family duties including cooking, cleaning, and child supervision. Abu-Jaber at first thought, "these women need to understand how the market works!" Over time, however, she has seen some companies offer flexible working schedules for women, with the result of increased participation. Meanwhile two USAID programs, the Jordan Competitiveness Program and the International Youth Foundation's YouthWork, have worked on regulatory issues to allow or promote home work and on-site child care.

Laws and regulations often follow practice. In the world of work, past generations certainly had reason to negotiate jobs for life, state-defined benefits, and the 40-hour work week. Today, employers competing in a fast-paced global economy are clamoring for the ability to hire temporarily, schools are

16 For several decades now, employers like Patagonia and Google have offered additional perks (called "beyond benefits") for a healthy, busy lifestyle—organic cafeterias, on-site concierge services, and complimentary sports facilities.

17 Hoffman, R., Casnocha, B., and Yeh, C., Tours of Duty: The New Employer-Employee Compact. Harvard Business Review, June 2013.

18 Source: personal interviews conducted by Lara Goldmark. Similar dynamics were noted by the Egypt affiliate of the same non-profit network, Education for Empoyment (efe.org).

in need of practical experiences to offer their students, and no matter how fast economies grow, there will never be enough formal jobs to offer one to each unemployed youth. It is likely that in the coming years, we will see efforts to redefine entirely what is meant by a job, what the ingredients are for a motivating, high-productivity workplace, and how one should obtain the skills to survive in this rapidly changing environment.

A Proposed Framework for Workforce Development

Given the trends discussed above, it seems almost inevitable that we would be experiencing a "mismatch" between skills and employer needs. Skills needs are evolving so fast that a stand-alone (or stand apart) education system is incapable of addressing them. Successful workforce development requires multiple actors to harmonize their actions—a notoriously difficult task. And, our legal and regulatory framework was designed to address conditions present in workplaces over a century ago. It is puzzling how many economies are managing to allocate jobs and grow priority sectors, given this situation.

Looking ahead, the world will only have more people and fewer natural resources—meaning a change in the focus of productivity efforts, and business models in general, is coming.[19] Below we propose a framework which can help move the current perplexed discussion to a more productive effort to "align the building blocks."

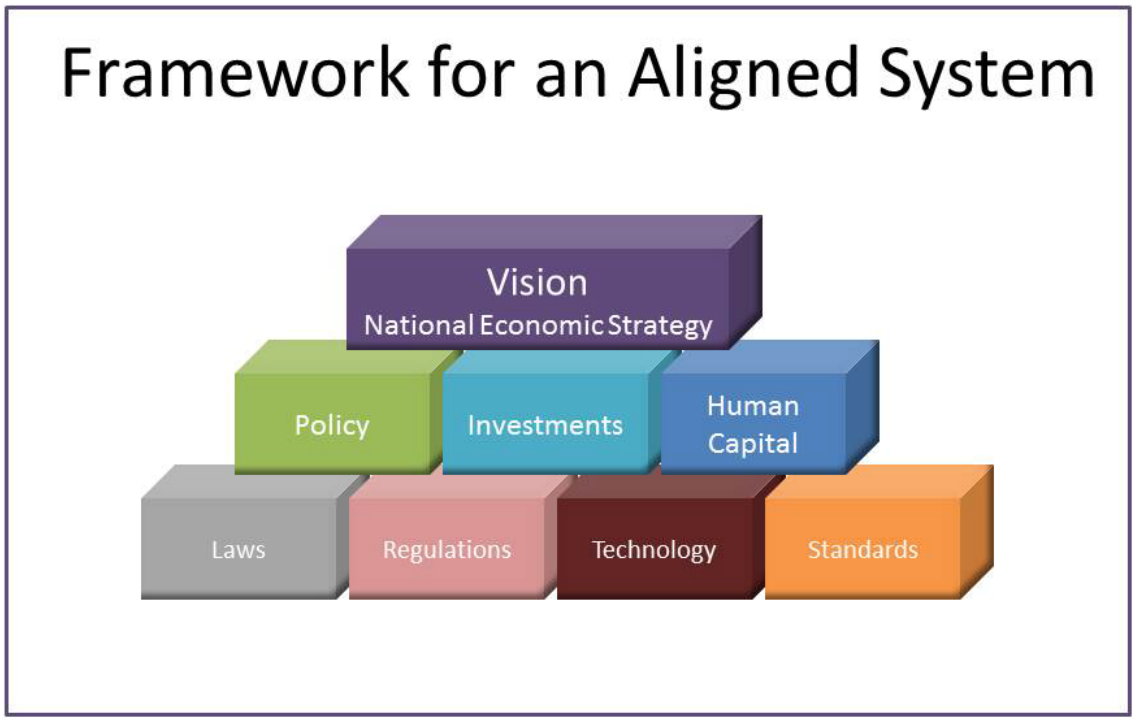
One of the common "myths" embraced by policymakers is that investing in education alone will deliver a skilled workforce. Many opinions were formed as the result of a 1991 World Bank finding that investing in general and primary education is the surest way to assure that countries have a flexible workforce.[20] The mistaken belief that education alone assures a skilled workforce is a problem in developed, as well as developing countries. In countries that have few good jobs (and weak demand for skills) relying on education alone has in many cases led to brain drain, with graduates leaving the country in pursuit of a better livelihood.

Rather than investing only in education, policymakers want to consider how investments in industry, agriculture, infrastructure, and services can be structured in such a way that the local workforce gains and retains the needed skills to accomplish the country's or region's larger economic goals. The illustration in Figure 1 shows the principal building blocks for an aligned workforce development system: a compelling national economic vision, one that may be attainable yet stretches local actors to learn and perform at their limit; policy that includes macro- and microeconomic policy—not just labor or education policy; and at the lower level, initiatives to develop better laws, regulations, technology, and standards, which can and should operate at the intersection of various government ministries, technical disciplines, and with the participation of private firms.

19 Recent examples of private sector investment in natural resource productivity include (a) Walmart increasing the fuel efficiency of its trucks, reducing waste and packaging, and increasing the energy efficiency of its stores; and (b) mining companies around the world voluntarily investing tens, even hundreds, of millions of dollars in water infrastructure, treatment, and efficiency programs around their sites.

20 Middleton, John; and others. Vocational and Technical Education and Training. A World Bank Policy Paper. IRDB. Washington DC, 1991. NOISBN-0-8213-1780-8PUB DATE91.

Figure 1. Framework for an Aligned System



Another prevalent "myth" is that economic growth will take care of jobs and skills. Economic growth can occur without job growth, as is the case in a number of countries whose incomes derive from extracting natural resources. However, when jobs are recognized as drivers of development, jobs provide higher earnings and better benefits as countries grow. As workers become more skilled their productivity increases, and more productive jobs appear. The number of jobs is not all that matters—jobs with high development payoffs are what is needed. For example, many international hotel companies such as Accor are investing heavily in reducing their environmental footprint. To do so they train their workers throughout the world on various environmental practices, which could have a development payoff if the knowledge their local employees acquire through training in their (developing) countries had a way of spilling over into the country's universities.[21] Efforts to make smallholder farming viable, foster functional cities, or facilitate the engagement of local industries in global markets, are examples of job-centered economic strategies that countries and regions can adopt as the first step in building an aligned workforce development system.[22]

21 According to the author's experience, universities in many developing countries appear to be completely divorced from the knowledge that is being generated inside corporate training programs. (World Bank 2010 Unpublished Study).
22 World Bank 2012. World Dev Report 2013: Jobs. © Washington, DC.
https://openknowledge.worldbank.org/handle/10986/11843 License: CC BY 3.0 Unported.

II: The Evidence from Best Practice Countries

To illustrate how an aligned workforce development system functions, we will present three case studies (Germany's dual system, Ireland, and Singapore). Ireland and Singapore depend heavily on foreign direct investment, a strategy pursued by many developing countries as a way to grow jobs and incomes. Singapore and Ireland both used foreign companies strategically to learn how to make things themselves. Germany uses the dual system as a way to maintain export competitiveness in a narrow product band including precision tools, machines, and innovative technologies.

Although each of the cases is now a developed country, they all began with virtually nothing aside from their human resources. In 1960, Singapore was a small island with no resources, except its people. In 30 years Singapore surpassed its own benchmarks for progress and is now at the leading edge in terms of human capital development. Similarly, in the early 1980's Ireland's economy was close to collapse. Young people had fled the country to find work elsewhere. President Mary Robinson used this crisis to mobilize the country's stakeholders, formulating a vision to have young people back working and thriving in Ireland within a generation. Finally, Germany lay in ashes in 1945. Interestingly, John Marshall (of the Marshall Plan) insisted that Germany include trade unions in its human capital development system, which was codified into law as the dual system in the late 1960's. The dual system is receiving international attention because it carefully integrates learning at work and in school so that graduates of the system can enter what would in the U.S. be considered mid-level positions in firms in most sectors of the economy. And students who wish to go on to university can receive free education to prepare them for university entrance requirements. Germany and other countries that use the dual system have the lowest youth unemployment rates in the world.

Republic of Singapore: An "Asian Tiger"

Population: 5,312,400 (World Bank 2012)
Land area (Sq. KM): 700 (World Bank)
GDP per capita: 51,709 (World Bank 2012 in US$)

The current vision of Singapore's Workforce Development Agency is "A competitive Workforce, with workers Learning for Life, and Advancing with Skills".

Building Blocks for Success

1. Prioritizes leadership, vision, and accountability

Singapore's current national strategy—***Lively and Livable Singapore – a Sustainable Blueprint***—is the product of the Inter-Ministerial Committee on Sustainable Development set up in January 2008 to formulate a national strategy for Singapore's sustainable development.[23] Singapore developed its first national vision in the late 1960's, soon after it became independent from British rule. At that time, Singapore's leadership noted that they had nothing but people on a small island with few other natural resources and were surrounded by large countries, whom they considered "Asian tigers." The country's leaders decided to develop a vision for the future. To do that, they visited a number of countries to

23 IMCSD. A Lively and Livable Singapore. 2009. Online at http://app.mewr.gov.sg/data/imgcont/1292/sustainbleblueprint_forweb.pdf.

benchmark indicators to adopt. They settled on Switzerland as it had the highest per capita income, lowest infant mortality, highest standard of living, highest level of education, and other such measures. They set upon a 30-year plan to reach Switzerland's numbers. By the late 90's Singapore had surpassed some of the original Swiss benchmarks.[24]

The 2009 National Blueprint for a Sustainable Singapore presents the vision of an environmentally and economically sustainable garden city; a city-state that provides good jobs for its citizens. Singapore tightly couples state agencies, financial and industrial capital. The small city-state of 5.3 million people uses an interlocking leadership network that is able to maintain strong social cohesion despite the fact that its population consists of several different nationalities and religions, such as Hindu, Buddhist, and Muslim.

2. Develops a national economic strategy and human capital development policy for achieving the vision

a. ***Aligns the actions of all stakeholders to turn the vision into reality***. Singapore's strategic plan[25] states, "We cannot stand still. We are in a continual race to attract investments and talents against stiff global competition. A thriving economy, able to provide ample good jobs for its people, is our starting point."[26]

b. ***Prioritizes skills throughout the education process:*** Singapore's national economic/industrial strategy and policies recognize that skills and knowledge, especially skills in Science, Technology, Engineering, and Mathematics (STEM), are the raw materials of a knowledge economy. According to the National Center for Education and Employment, Singapore awards the highest number of STEM degrees as a percent of total tertiary programs.[27]

c. ***Utilizes strategic partnerships between business, government, and education to achieve the shared vision.*** Singapore's strategic plan "marks the beginning of a closer 3P (People sector, Private sector, and Public sector) partnership for sustainable development."[28] Over 700 focus groups and 1,300 suggestions from the public were used in the process of developing the plan. For skills development, industry players, training institutions, and unions work together in Industry Skills and Training Councils to identify the skills required for industry and to develop industry-specific Workforce Skills Qualifications.

3. Maintains an independent entity that calibrates supply and demand for skills

a. ***Singapore's National Workforce Development Agency (WDA)*** provides resources for intermediation services to move the strategy throughout the stakeholders and hold all accountable.[29] Singapore's Workforce Development Agency's (WDA) supports sustainable and productivity-driven growth through Continuing Education and Training (CET). In the push for inclusive growth, WDA continues to help low-wage workers who require assistance to adapt to a fast changing economy. Singapore uses a market mechanism to provide training to its SMEs.

b. ***Coordinates and maintains 33 industry councils.***[30] Singapore's human capital strategy utilizes 33 Industry Skills and Training Councils who represent key industry partners including

24 Aring Monika and Cathleen Corbitt. Singapore Case Study. Best Practices Compass for Workforce Development. EDC. 1998. Online at www.eric.ed.gov/ERICWebPortal/recordDetail?accno=ED461767.
25 Sustainable Singapore Blueprint website. Online at app.mewr.gov.sg/data/imgcont/1292/sustainblebluepr int_forweb.pdf.
26 Sustainable Singapore website online at http://app.mewr.gov.sg/web/Contents/ContentsSSS.aspx?ContId=1034.
27 NCEE. Online at www.ncee.org/.../statistic-of-the-month-investigating-the-skills-mismatch.
28 The Inter-Ministerial Committee on Sustainable Development. A Lively & Livable Singapore: Sustainable Development Blueprint. Online at http://app.mewr.gov.sg/data/imgcont/1292/sustainblebluepr int_forweb.pdf.
29 Various interviews.
30 Singapore Workforce Development Agency (WDA) website. Online at http://www.wda.gov.sg/content/wdawebsite/L207-AboutWSQ.html.

employers, industry associations, training organizations, and unions. These Councils are coordinated by the WDA.

c. ***Institutionalizes mechanisms for identifying and anticipating future skill and knowledge needs and adjusts educational goals/objectives accordingly.*** Each the country's 33 Industry Training Councils[31] develops an Industry Competency Map,[32] capturing the type of skills needed in the industry, and lists: employability skills, occupational skills and knowledge, and industry skills and knowledge. The Industry Skills and Training Councils review the learning outcomes to ensure the Qualification Framework remains current and relevant.

4. **Adapts its policies as needed to respond to skills shortages.** Singapore has skill shortages (too few qualified people) in several sectors. Singapore uses two strategies to increase the number of skilled people: 1) capture the potential of older workers by providing incentives for employing older workers; and 2) liberalized immigration policies.

5. **Aligns education and training to deliver the vision.** According to the national economic strategy, Singapore's first priority is to boost skills in every job.[33] The National Strategic Plan was developed by an inter-ministerial committee after extensive consultations with business and community leaders and members of the public.

6. **Uses "pull" mechanisms to support the education and training strategy**. Singapore resources its education (and economic) strategy with a number of mechanisms, some of which are described in detail here:
   a. ***A Skills Development Fund[34] that provides up to 95 percent of training costs for SMEs and workers who need better skills.*** Singapore firms, especially SMEs, are encouraged to use the Skills Development Fund for Workforce Skills Qualifications courses, part time Institute of Technical Education skills certificates, as well as part-time diploma, advanced diploma, and conversion programs offered by the five local polytechnics.
   b. ***Training for teachers, trainers, instructors, and professors.*** STEM skills are introduced early in the education process and there is considerable innovation at all levels to improve quality and level of technical skills and improve quality and level of pedagogic skills. Teachers are entitled to 100 low or no-cost hours of professional development per year. The role of the teachers is facilitation, as students can get knowledge from a multiplicity of sources, according to the Edutopia Website.
   c. ***Encourages innovation for teaching STEM skills.*** The National Strategic Economic Plan[35] states "Singapore must continue to develop our school curricula and assessment at the primary and secondary level to allow our students to develop the skills that can be practically applied in the real world. Singapore has become one of the top-scoring countries on the PISA (Program

31 Singapore Workforce Development Agency (WDA) website. Online at http://www.wda.gov.sg/content/wdawebsite/L101-ForIndividuals.html?parent=topnavindividuals&openTab=0.

32 for information about competency mapping, refer to the Competency Model Clearinghouse, Online at http://www.careeronestop.org/CompetencyModel/default.aspx.

33 Report of the Economic Strategies Committee: High Skilled People, Innovative Economy, Distinctive Global City. 2010. First, we have to boost skills in every job. We should develop an outstanding nation-wide system of continuing education and training, to give everyone the opportunity to acquire greater proficiency, knowledge and expertise, from the most basic jobs to the most complex. Employers and industry associations, unions and government will also have to work together to redesign and create better jobs. We recommend a progressive increase in foreign worker levies to incentivize companies to improve productivity.

34 WDA website. Online at http://www.wda.gov.sg/content/wdawebsite/programmes_and_initiatives/WTS_TrainingGrant_Employer.html.

35 Singapore's Economic Strategy 2010 document lists a set of comprehensive strategies that make the path of further skill development more transparent, requiring coordination of multiple actors. Online at www.ecdl.org/media/Singapore%20Economic%20Committe_2010.pdf.

for International Student Assesssment) tests.[36] Although class sizes are large, especially at the secondary level, averaging 36 students per class, teachers intentionally use social media and technologies to speed up learning while making it fun. Teachers scan the globe for best practices to develop innovative capabilities through cross-disciplinary and practice-based learning.[37]

d. ***University incentives for R&D and innovation for STEM.*** Under the National Framework for Enterprise and Innovation (NFIE),[38] an Innovation Fund was established in each university in Singapore to supplement the universities' internal funding for innovation and entrepreneurship activities. Innovation Funds for universities help fund entrepreneurship education, technology incubators, entrepreneurs-in-residence and other programs, to promote commercialization of university technologies.

7. **Provides a career information system that makes jobs and skill needs more transparent.** WDA's website has a section for individuals, providing information on training, jobs, special initiatives, and offers an online career guide to help all workers make more informed career choices.[39] Similar information is available for employers, where the website has tabs for the Skills Development Levy, Training Employees Guide, Recruiting Employees Guide, a Course Directory, a list of special initiatives, and a list of careers and industries in demand in Singapore.[40]

8. **Develops and uses metrics to assess progress, especially internationally benchmarked comparisons on skills.** The Workforce Skills Qualifications Framework Competency Map states what students should know to perform specific tasks, by industry. These qualifications are linked to international standards.

Team Ireland: "Educated, Employed, … Irish – the Celtic Tiger"

Population: 4,588,798 (World Bank 2012)
Land area (Sq. KM): 68,890 (World Bank)
GDP per capita: 45,836 (World Bank 2012 in US$)

Building Blocks for Success

1. **Prioritizes leadership, vision, and accountability**

The 2008-2012 Business Environment Ranking of the Economist Intelligence Unit named Ireland one of the most attractive business locations in the world.[41] With a population of approximately 4.6 million, Ireland gained independence in 1922 and became a member of the EU in 1973. Between 1988 and 2000, real GDP grew by 132% compared with 32% in the EU as a whole. Unemployment went down from 16.2% to 4.2%.[42] Unlike its Asian tiger counterparts, Ireland is a "more open economy with less direct

36 Singapore's 21st-Century Teaching Strategies. Edutopia. Online at http://www.edutopia.org/education-everywhere-international-singapore-video
37 Ibid,
38 National Research Foundation. Prime Minister's Office, Republic of Singapore. National Framework for Innovation and Enterprise website. Overview available online at http://www.nrf.gov.sg/innovation-enterprise/national-framework-for-research-innovation-and-enterprise
39 Singapore Workforce Development Agency website. Online at http://www.wda.gov.sg/content/wdawebsite/L202-SingaporeJOBSpedia.html.html
40 Singapore Workforce Development Agency website. Online at http://www.wda.gov.sg/content/wdawebsite/L202-SingaporeJOBSpedia.html?parent=topnavemployers
41 IDA Ireland website. Online at http://www.idaireland.com/invest-in-ireland/?gclid=CJHTyoyexrgCFQHZQgod8ywA2A
42 Alasoini, Ramstad, Hanhike, and Rouhiainen. Learning across Boundaries. Workplace Development Strategies of Singapore, Flanders and Ireland in Comparison. Publication of WORK-IN-NET Project. Helsinki 2008. P48

intervention by the state in the actions of business and a more loosely coupled organizational and institutional infrastructure," according to Alasoini, Ramstad, Hanhike, and Rouhiainen.[43]

The IDA is Ireland's Inward Investment Promotion Agency, responsible for the attraction and development of foreign investment in Ireland. IDA began in the late 1980's as a response to the flight of the country's young people to other countries, where many worked in the ICT sector. At that time, Ireland's President, Mary Robinson, formed the IDA by mobilizing key stakeholder groups via social partnership agreements. The stakeholder groups, or social partners, forged a vision that would "bring back our youth in a generation." This vision translated into a set of 5-7 year-long interlocking strategies (supported with EU funding) that were designed to move the country from low skills to being one of Europe's most advanced ICT capitals, 20 years later.[44] IDA's current strategic plan, Horizon 2020, takes account of global megatrends, economic and geopolitical changes, and technology roadmaps.[45] Investments specifically target jobs and further investments, location of investments, % Income from high growth emerging markets, annual investment in excess of €1.7bn in R&D and innovation, along with ten steps for transformation of the country's small and medium enterprises.

2. **Develops a national economic strategy**

The national economic strategy aligns the actions of all stakeholders to turn the vision into reality. Since the 1980s the IDA has aligned stakeholders (various ministries, academia, industry and regulatory agencies)—*Team Ireland*—to deliver on strategic plans. "Backed by a highly pragmatic Government policy, these stakeholders work together as a national team to win investment in Ireland."[46] Team Ireland extends across local authorities, employer/industry organizations, utility/infrastructure providers and a range of other Government agencies, all of whom are highly motivated to secure investment from multinational corporations and ensure the success of their Irish operations.

Ireland's launch of its National Workplace Strategy in 2005 came after a long series of partnership agreements between government, employers' associations, and trade unions. As part of this strategy, Ireland launched a program to help its businesses modernize. The project outcomes were gathered as best practices and disseminated by means of training and a series of regional seminars. [47]

3. **Develops a National Workplace Strategy (Team Ireland)**

The National Workplace Strategy became statutory as part of the National Economic and Social Development Office. The strategic agenda is framed by policy guidelines and implementation of the National Workplace Strategy and a new Social Partnership agreement "Towards 2016."[48] The strategy is the result of collaboration between state agencies, labor market organizations, expert organizations, businesses, and public workplaces. The Partnership holds a Forum on the Workplace of the Future as a way to bring issues together in a new context—one based on the future, not only on the past. The strategy places a premium on innovation and the quality of Ireland's workforce, decreasing dependence on imported technology and foreign sources of innovation. Ireland is to become a *"technology maker instead of technology taker."*

43 Ibid, p.50.
44 Author's conversations with Patricia Cronin, founding member of the IDA.
45 IDA Ireland website. Online at http://www.idaireland.com/news-media/press-releases/tanaiste-launches-ida-ire/index.xml
46 IDA Ireland website. Online at http://www.idaireland.com/
47 Alasoini, Ramstad, Hanhike, and Rouhiainen. Learning across Boundaries. Workplace Development Strategies of Singapore, Flanders and Ireland in Comparison. Publication of WORK-IN-NET Project. Helsinki 2008. p. 52
48 Ibid. p. 66

4. **Maintains an independent entity that calibrates supply and demand for skills, aligned with the national strategy and vision**

To deal with fragmentation and course duplication, a new education and training authority, SOLAS, (Further Education and Training Authority) is being established to replace the FÁS-Training and Employment Authority. SOLAS will operate under the aegis of the Department of Education and Skills. The new body will champion a greater emphasis on generic, transferable skills, including people-related skills, thinking and problem-solving skills, and digital literacy skills. It will be underpinned by stronger quality assurance, occupational standards, international benchmarks and content reviews.

5. **Provides resources for intermediation services**

The principal functions of SOLAS' forerunner, FÁS, are stipulated in the 1988 Labor Services Act and include training and retraining, designating apprenticeships, recruitment services, employment programs, placement and guidance services, assisting community groups and offering advice to people returning to Ireland or seeking employment elsewhere in the EU. FÁS website's Training page lists extensive training programs for every type of training need.[49] SOLAS coordinates services for and maintains linkages with industry councils in every sector of the country's economy. These include the various manufacturing and service sector councils as well as creative industries councils.

6. **Anticipates future skill and knowledge needs and adjusts educational goals**

The Expert Group on Future Skills Needs gathers data on those entering and leaving the Irish education system (primary through to higher education and training) spanning the ten levels of the National Framework for Qualifications.[50] It also forecasts future skills supply based on past analysis of population, numbers of people likely to enter further education and training, higher education, STEM focus, and post-graduate education. The report states this is against a background of an increasingly competitive global environment where other economies are also rapidly upskilling their workforce.[51]

7. **Uses strategic partnerships between business, education, and government**

The All Island Skills Study recognizes that a skilled all-island (North and South) workforce will be a key resource for a more competitive and prosperous economy, thus both governments have agreed to work together to ensure that sufficient and appropriate skills are in place to encourage sustained growth. Funding to support strategic partnerships is a part of the Department of Education and its Training and Employment Agency is a part of the country's national economic strategy.

The All Island Skills Study identifies future growth in high value manufacturing, financial and business services, life sciences, and ICT. To ensure that tertiary education meets the national and economic strategic plan and goals: approximately 70% of Ireland's third-level students study engineering, science, computer science, or business.

- Tertiary Education is highly competitive, with no courses available on liberal arts. "From Ireland's point of view, students use their time more efficiently by only studying those subjects that will make them better workers in technical industries."
- Ensures that secondary TVET education meets national and economic strategic plan and goals.

(Expert Group on Future Skill Needs, 2008.)

49 FAS website, Online at http://www.fas.ie/en/Training/Home/default.htm.
50 Forfás is Ireland's policy advisory board for enterprise, trade, science, technology and innovation. Online at http://www.forfas.ie/publications/2013/title,10975,en.php.
51 Expert Group on Future Skill Needs. Northern Ireland Skills Expert Group. All Island Skills Study, 2008.

8. **Aligns education and training to deliver the strategy**
Ireland's Skills Task Force, led by the Chair of the Training and Employment Agency, stipulates that the economic development strategy should inform education and training policy; collaborative clusters of schools, businesses and colleges should be established; the current system of careers guidance should be enhanced; and teacher training should include an industry placement module. This will require the introduction of new education and training modules and/or courses at graduate, post-graduate and professional level. [52]

9. **Provides incentives for universities to partner with industry and innovate**
Ireland appears to have pursued a strategic alliance with US universities, the National Science Foundation, and the National Institutes of Health. According to the IDA website: "The Governments of the United States of America, Northern Ireland, and the Republic of Ireland have come together for a unique initiative to advance scientific progress in fields that will have a significant impact on the health, well-being and economic prosperity of all their citizens."[53]

10. **Uses internationally benchmarked metrics for skills and competencies**
Ireland's Higher Education Authority evaluates performance via clear metrics on performance of Ireland's skill base compared to benchmark countries. The National Skills Academy for Manufacturing developed a sector wide skills assessment for STEM (Science, Engineering and Manufacturing Technologies) and in 2010 reports an overall skills gap of 23% in the engineering and sciences industry.[54] The assessment points out the need for higher-level STEM skills and the need to up-skill over 75% of the 2020 workforce.

Germany's Dual System of Education and Training

Population: 81,889,839 (World Bank 2012)
Land area (Sq. KM): 348,570 (World Bank)
GDP per capita: 41,514 (World Bank 2012 in US$)

Brief Background

The dual system is a renewed subject of attention, not least because Ministers of the G20 nations recently noted that Germany as well as Germanic countries have the lowest youth unemployment and the highest level of skills. The *dual system* of education and training is practiced throughout the German speaking countries (Germany, Austria, and Switzerland), as well as Denmark. It is called *dual* because education and training of youth between the ages of 18 and 22 is done concurrently in schools and workplaces throughout all regions of the country, including the former East Germany.[55] Although the German states contribute toward the cost of each "youth apprentice" by funding education received at school, the majority of the costs are borne by employers, who pay a 2.8% levy to finance in-company training. In addition, they pay the apprentices training stipends whose amounts differ depending on the occupation. Considered by experts throughout the world as a model of professional technical training, various aspects of the *dual system* have been adapted by several countries throughout the world,

52 IDA Ireland website. Online at http://www.idaireland.com/news-media/press-releases/skills-development-centra/ /role-structure-he-division/he-research-policy/us-ireland-partnership-2.htm.

54 Sector Skills Assessment for Science, Engineering and Manufacturing Technologies. The National Skills Academy for Manufacturing. December 2010. Online at http://www.oph.fi/download/145290_NI_SSAfullreport_v8.pdf.
55 Aring, Monika and Cathleen Corbitt. Compass for Workforce Development. Germany's Dual System of Education. EDC for USAID 1998. Online at http://pdf.usaid.gov/pdf_docs/PNACB077.pdf.

including China and Chile. The *dual system* is not a program or a project. Rather it is a system that prepares approximately 60 percent of the country's youth for entry into mid-level technical or professional occupations in the manufacturing and service sectors. The dual system is the means by which all German speaking youth who do not go immediately to university acquire the credentials they need to work. The *dual system* is considered a part of the public education process. While the *dual system* has many strengths and delivers results, it has been characterized by some as inflexible and overly rigid.

Some policymakers believe the *dual system* is an outgrowth of a uniquely German culture and therefore cannot be replicated. While it is true that the *dual system* had its origins in the guilds of the Middle Ages, when master craftsmen took on apprentices who in turn became masters, the *dual system* depends not so much on culture as on a legally sanctioned partnership between employers, employer associations, youth, schools, and organized labor. The role of the federal government is to provide the legislative framework and carry out research and development activities that make sure the partners in the system have information about changing skill requirements in various sectors of the economy.

Andrea's Story

When Andrea finished high school she knew that she didn't want to go to university. She liked people and wanted to work with people. She decided to learn the tourism industry through the dual system. With her parents she signed a contract at the local chamber. For the first six months she learned three days a week at a local restaurant. She learned how to prepare food, order and purchase food, serve food, and clean up afterward. At school she learned French and English, laws governing tourism, math, and German. At the end of six months she was sent to learn at a small hotel, where she rotated through housekeeping, reservations, and front desk positions. For her second and third year of training she went to a 5-star hotel in nearby Frankfurt, where she was systematically rotated through all the departments. She passed her final exam at age 20 and was offered a job to open a travel agency's first office in Cairo.

Building Blocks for Success

1. **Prioritizes leadership, vision, and accountability**

The basic organizing principle underlying the *dual system* is the principle of "social partnership," a term used in Europe to mean stakeholder partnership. This means in practice that employers, organized labor, schools, Chambers of Commerce, and Trade Associations as well as the government must work together to ensure the development of highly skilled young people. More than half of all German employers and all the trade unions, Chambers of Commerce and employer associations participate in the *dual system*. They have invested in an extensive network of support facilities, such as super-regional and regional training centers to "fill in" any gaps in learning that youth might have experienced in workplaces that are less technologically sophisticated than others. With the exception of medical education (nursing, health-related), some 300 manufacturing and service occupations are part of the *dual system*. These occupations cover much of the economy. Young Germans who wish to get a job in one of the 300 occupations must have a certificate that demonstrates their successful completion of the three-year training. Employers who fail to teach youth the requisite skills lose their "license" to provide training. Being a training institution is considered an honor in Germany, and it is not unusual to find bakers, dressmakers, banks, and electronics firms proudly displaying their training permit on their front door. Trade unions are an integral part of the *dual system.* They ensure that the curriculum is broad enough to ensure portability of skills across jobs, and that youth in the system are not exploited unfairly.

2. **Develops a national economic strategy and policies that support human capital development**

Germany has developed economic strategies in a number of key industries and economic sectors. Overarching these is a high-tech strategy focused on leading innovation to solve global challenges while improving people's lives and standard of living, offer new value creation for the private sector, and create new high level jobs in Germany while making better use of talent.[56] In 2010, Germany ranked 2nd in the world in terms of exports.[57] According to the Association of German industries (BDI), global economic integration is one of Germany's key economic strategies.[58] The export of goods and services constitutes around half of Germany's gross domestic product. All in all, in Germany nine million jobs, i.e. almost a quarter of all jobs, are dependent on foreign trade. The social partners (Stakeholders) in the dual system believe integrating learning at work with learning at school develops a steady supply of highly skilled workers for their export industry, which in turn will help keep wages for high value added exports low and minimize youth unemployment.

3. **Maintains an independent agency to calibrate supply and demand for skills**

The skill requirements are determined at the national level by the Chamber of Industries and Commerce, in partnership with the relevant education ministries and trade unions. For example, the Automotive Industry Association collaborates with the Ministry of Vocational Education and relevant trade unions to determine skill needs. Local Chamber of Commerce and Industry in each region monitor learning at companies to make sure that curriculum goals are met.

4. **Adopts policies as needed to respond to skills shortages**

Germany's Bundesinstitut für Berufsbildung (BiBB) (Federal Institute for Occupational Training) is a research institute that conducts long range studies to identify future skill needs and how to best develop these. BiBB works with the social partners by industry sector to help identify future skill needs and adapt the dual system to deliver these skills.

5. **Aligns education and training strategies to deliver the vision**

To meet curriculum (learning) objectives, dual system trainers collaborate with vocational educators to make sure that students learn the needed skills in theory and by practice. For example, students who are learning mechatronics (the fusion of mechanics, electronics, software, and engineering) learn basic physics, electronics, mechanics and software in school. At workplaces such as the automaker BMW, they are systematically rotated through various departments where they have to learn the tasks in each department. At the end of their rotation they must teach back what they have learned to the supervisor of that department. When students first arrive in the workplaces that participate in the dual system they may be given their final exam assignment (design and build a miniature automobile assembly) and then asked to design their own learning plan for the next three years. Companies must provide in-company trainers and mentors who guide the students through their learning process at workplaces.

56 Federal Ministry of Education and Research. Ideas. Innovation. Prosperity. A High Tech 2020 Strategy for Germany. "Innovation is achieved through new technologies, innovative services and social change, but it also driven by the global challenges which demand new solutions and answers. Most of these challenges can be found in the areas of climate/energy, health/nutrition, mobility, security and communication. The aim of the High-Tech Strategy is to make Germany a leader when it comes to solving these global challenges and to provide convincing answers to the urgent questions of the 21st century. This will not just improve people's lives and standards of living; it will also offer new value creation potential for the private sector, create high-level jobs in Germany and help us make better use of talents here in Germany. For this reason, the Federal Government's innovation policy activities are geared towards these five fields of action, with the aim of tapping emerging markets."

57 Nationmaster.com, exports by country. Online at http://www.nationmaster.com/graph/eco_exp-economy-exports.

58 BDI website. Online at http://www.bdi.eu/BDI_english/89.htm.

6. **Provides career information systems**

Job seekers can draw on an extensive network of support to find out what jobs are in demand, what subjects should be studied, what occupations there are, what occupations are not in high demand, and watch videos on various occupations, as well as take personality inventory and other tests to determine fit with an occupation.[59]

7. **Uses internationally benchmarked metrics for skills and competencies**

Germany participates with the OECD's PIAAC (Programme for the International Assessment of Adult Competencies**)** that collects and analyzes data that assist governments in assessing, monitoring, and analyzing the level and distribution of skills among their adult populations as well as the utilization of skills in different contexts. The Survey of Adult Skills and the Education and Skills Online Assessment are part of a package of tools available to support countries develop, implement, and evaluate policies that foster both the development of skills and the optimal use of existing skills. Each industry association uses its metrics for assessing skills and competencies and these competencies are tested in the final exam of the dual system. The final exam consists of written and demonstration work. Students completing the dual system get a certificate that is recognized by employers in the industry. Some certificates, such as mechatronics, are internationally recognized.

III: Recommendations

It may be tempting to dismiss the best practice examples and recommendations in the preceding section as being inappropriate for developing countries, as most developing nations lack the social, legal, financial, and physical infrastructure required for the stakeholder partnerships to increase human capital that grows jobs and economies. While that is patently true, it is also true that the best practice countries (and others, such as South Korea) started with nothing except their people. Arguably, many Germans who survived two world wars were educated, and Ireland's people could speak, read, and write English, which put them on the bottom rung of the ladder in terms of attracting call centers as the first step in an economic strategy focused on software development. However, many development practitioners have focused far too much on what is missing when it might be more productive to take an approach of appreciative inquiry[60] to uncover the hidden potential, assets, and strengths of a given country. Finally, although there are major differences in terms of complexity, resources, and technologies used, the fundamental principles embodied in the best practice cases hold true and are the sources for the following recommendations.

> "The global challenge is so great that no single stakeholder can solve it alone. Unless companies, policymakers and academic institutions join forces to design inclusive modern human capital strategies, we might in less than one decade face a real talent crisis, becoming a barrier to sustainable growth and post crisis recovery." WEF's Executive Board calls for a "concerted, multi-stakeholder dialogue to coordinate mutually relevant policies and regulations." It also calls on governments to "lift barriers to talent mobility." (World Economic Forum, 2013.)

59 German Labor Ministry website. Online at http://berufenet.arbeitsagentur.de/berufe/.

60 Coined by David Cooperrider at Case Western Reserve, appreciative inquiry is a process of uncovering often hidden strengths and assets, as well as what works, what is best in any setting and situation. A detailed description of AI can be found online at appreciativeinquiry.case.edu/intro/whatisai.cfm.

Recommendations

1. ***Start with the vision.*** Wherever possible, start the workforce development process with an economic and social vision that states a desired future for the country while stretching the capacity of the country, community, or region. While future oriented, the vision should be sufficiently grounded in reality to be achievable with effort. Developing this vision is likely to require research, and perhaps even soul searching among the social partners (stakeholders). The vision should stretch the capacity of each social partner, indeed, the "stretch" provides the motivation to learn together and collaborate while increasing their competency levels.[61] The vision should be powerful enough to call the different social partners (stakeholders) to action and make it clear that each social partner has a critical role to play in bringing the vision into reality. There are a number of processes that can be used to develop a vision and build stakeholder ownership in the process.[62] It is critical that the vision represents a genuine desire on the part of all the stakeholders; that it calls forth what they see is best for their country.

2. ***Develop a strategy.*** Once the vision is in place, develop a strategy that can deliver on the vision. Identify who is responsible for which part of the strategy. Operationalize the human capital strategy with milestones and hold social partners accountable for delivering on their part.

3. ***Use government as a convener and broker*** wherever possible. In the absence of a government that can play that role, use an independent entity such as a major foundation or other independent institution.

4. ***Create or empower an existing body to review and reform policies related to employment.*** Propose reforms where existing laws and regulations are inhibiting on-the-job learning, responsible temporary hiring, flexible schedules, and other women and youth-friendly measures. Track successful career paths of youth and document workplace practices used by fast-growing firms. Encourage stakeholders to propose, and offer permission to experiment with, creative out-of-the box programs to encourage employment, including interventions with informal sector firms. Document, learn, and incorporate relevant measures into the policy toolbox.

5. ***Form a Workforce Development Agency or Authority.*** Once the vision and strategy is in place, form a Workforce Development Agency that is independent of any particular administration. This Agency should have statutory powers as needed and should manage a standing Human Capital Council that includes various Ministries, such as Education, Labor, Commerce, Science and Technology, as well as heads of business associations and trade unions, where applicable.

6. ***Establish and coordinate industry skills councils.*** The Workforce Development Agency should establish, and then coordinate the work of independent skills councils. Each skills council should be composed of business associations in the business sector, education institutions, and other stakeholders. Business leaders should communicate current and anticipated skill needs to the education partners in the Skills Council.

61 Aring, Monika and Betsy Brand. The Teaching Firm. 1998 and 2000. EDC. Empirical research with 1000 data points demonstrates that a stretch goal and a culture that enables learning is the biggest motivator for learning at work.
62 Future search processes can be a powerful means of developing a stakeholder owned vision.

7. ***Look for pull mechanisms to align education and training strategies with the economic vision and strategy.*** The education reform process that is required is likely to be extensive and resistant to change. However, pull strategies, such as investing in teacher training, innovative online learning partnerships such as with U.S. institutions, competitions, international recognition, etc. may all serve to pull the education institutions in a new direction.

8. ***Create pull mechanisms to make universities more responsive to labor market needs.*** Consider using incentive funds, as in the case of Singapore, and make sure that university leaders are a part of the human capital agency that aligns education and training at work and in schools with the national economic strategy. In nearly all countries, public universities have a dual mission and contract to advance new knowledge and train the next generation of leaders to advance that society's goals and needs.

9. ***Use university R&D centers*** co-financed by industry and strategically use innovation funds to foster the development of products and processes.

10. ***Use pull strategies to encourage business investment in training at work.*** For example, Singapore's Skill Development Council makes it easy for Small and Medium Enterprises to invest in training their workforce by financing 90% of the cost. The tradeoff is that the Council has the final say in who gets training, and for what skills, to make sure the skills are aligned with priorities embodied in the vision and strategy.

11. ***Develop a career information system to make the labor market transparent.*** The system should be a clearinghouse that informs job seekers and job providers.

12. ***Use metrics to determine if skills are being developed.*** These metrics should be internationally benchmarked.

13. ***Wherever possible, utilize partnerships with private sector firms to solve shared development problems.*** For example, a company may be more willing to train young people if those costs are shared.

14. ***Build social infrastructure***. Even in countries where there is no social partnership, no vision, and no human capital strategy, aid should focus at least in part in building this social infrastructure. For example, if pushed to deliver a rapid jobs program in a country some of the aid should be used to build the social infrastructure and relationships described above.

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