Human Capital

For countries across the world, there is an immense opportunity to create world-class education and training systems fit for the evolving needs of the economy, society and public sector. The degree to which these systems build human capital to meet and anticipate the needs of citizens, states and markets is at the heart of state effectiveness, impacting social cohesion and civic engagement, public service delivery, economic development and underpinning all other state functions.

Human capital is defined by ISE as the abilities, knowledge and skills possessed by individuals that contribute to public prosperity and personal wellbeing.

Human capital also promotes productivity in the modern knowledge economy. The workplace demand for socio-emotional skills, technological fluency and higher cognitive skills – such as critical thinking and complex problem-solving – will continue to grow at a rapid pace over the next decade.[1] These skills equip the workforce to carry out the knowledge-intensive activities that are a constantly evolving feature of the modern production and delivery of goods and services. A lack of investment in human capital lowers the employability of individuals and the collective economic wellbeing and effectiveness of every sector suffers. In the manufacturing industry alone, "the skills gap may leave an estimated 2.4 million positions unfilled between 2018 and 2028, with a potential economic impact of $2.5 trillion."[2] Countries at the forefront of meeting this challenge are building agile education and vocational training systems as the primary means of creating the resilient type of human capital required to stave off the obsolescence of skills and knowledge in a rapidly changing labor market.

Sourcebook Overview

ISE's Human Capital Sourcebook provides an overview of key strategic and policy issues together with practical guidance and contextual considerations on how to operationalize the human capital function through the design, execution and delivery of effective education and training policies and services. It aims to provide a holistic perspective that enables readers to think critically about how to develop human capital in a wide variety of scenarios and contexts.

The sourcebook provides a definition of human capital and explores the value of the investment in human capital to society, the economy and the public sector, as well as to the individual. It provides an overview of the history of the concept of human capital and the evolution of approaches towards human capital development and examines some of the most pressing, modern challenges related to knowledge and skill acquisition. The sourcebook provides an overview of the operational elements underpinning a human capital system, from policy-setting and rulemaking, to personnel, curriculum, budgeting and evaluation, institutional arrangements and recommendations and considerations for building and improving a system to invest in human capital. The Sourcebook then discusses development strategies and the use of benchmarking frameworks to implement and achieve reform goals to advance the human capital function through development phases. Finally, the Sourcebook reflects on the future of the function and how the rapidly changing education and training field might evolve in the coming decades, including through the adoption of new technologies.

Opportunities for Human Capital Transformation and the Role of the State

The Human Capital Sourcebook is intended to help governments leverage windows of opportunity for the reform of the function. **Recent global shocks, like the 2008 financial crisis and the COVID-19 pandemic, have highlighted the extent to which states have fallen short in creating agile and resilient education and training systems.** The financial crisis showed the importance of an adaptable and resilient workforce. While many groups of citizens were the ones hardest hit by the downturn, their contributions were also key to economic recovery. As the COVID-19 pandemic forced school closures around the world, cost millions of jobs and sent

1. Jacques Bughin, et al., "Skill shift: Automation and the future of the workforce," McKinsey Global Institute, 2018, https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce.

2. Seema Pajula, et al., "2018 skills gap in manufacturing study," Deloitte, 2018, https://www2.deloitte.com/us/en/pages/manufacturing/articles/future-of-manufacturing-skills-gap-study.html.

employees to work from home, the disruptions challenged states to confront how to continue the provision of essential services and mitigate the risk of human capital losses.

Countries can, however, seize these crises as opportunities for transformation and the re-configuration of priorities. The pandemic, for example, had the unexpected positive effect of creating a "moment in history when the central role of schooling in the economic, social, and political prosperity and stability of nations is so obvious and well understood by the general population."[3] The reality, however, is that states should prepare for unexpected shocks and crises to become more common and for the pace of change to continue accelerating. The good news is that, if the modern environment is constantly in flux and transitions are a precursor for transformation, there is always an open moment for states to reform their education and training systems.

ISE knows that there is no singular path for states to develop human capital, yet there is an urgent need for re-assessing how this state function serves modern-day needs. The sourcebook is a comprehensive, analytical and practical guide for the state to diagnose its specific human capital challenges and design its own solutions to these problems. **Despite the lack of a one-size-fits-all answer, ISE proposes that the global community's north star should be to create high-quality and accessible education and training opportunities that build an agile and resilient workforce that can adapt to the knowledge economy's ever-changing demands and meet the needs of society and the public sector, as well as the individual.** The vision for an education and training system is, ultimately, to promote economic prosperity and public wellbeing for all stakeholders.

The Building Blocks of Effective Human Capital Development

Enabling a vision and actioning priorities

In creating a vision for developing the human capital function, the state communicates its priorities by outlining what citizens can expect to gain from education and training and what policymakers should do to meet development goals. ISE's sourcebook describes how state institutions carry out these priorities through human capital operational elements, which are the processes or activities underpinning the function. As such, these elements are distinct yet aligned in their purpose of enabling the state's vision and progress towards targets. The operational elements listed below provide the underpinnings for how a state, whether in a low, middle or high-income tier, can define and structure the delivery of target outcomes, breaking these down into clear institutional mandates or objectives that the state can execute.

1. **Rules, standards and policy-setting:** By establishing rules, standards and policies, states determine how education and training services are designed, delivered and governed. For example, these frameworks may define the balance between primary, secondary and tertiary education, the level of centralization within an education and training system, and identifying the entities (at the local, regional or national level) responsible for making decisions and monitoring outcomes. Furthermore, policy and legislation can serve to combat discrimination in all forms to enable equal and inclusive access to services for all people.

2. **Program design, monitoring and evaluation:** The goal of this element is to create an actionable strategy around the state's human capital vision, fit for local resource and capacity parameters. The design, monitoring and evaluation of programs involves setting targets and key performance indicators, designing frameworks for continuous evaluation and improvements and then reporting on progress.

3. **Curriculum development:** Designing a curriculum aligned to human capital goals is foundational to the success of an education and training system. The content may expand beyond traditional subjects of numeracy and literacy to include subjects and skills fit for the modern world. Innovations in teaching can also enhance the effectiveness of a curriculum by making learning a more dynamic and student-centered process.

4. **Budgeting and financing:** Budgeting and financing operations involve the costing of policies and programs into a financial plan and the identification, allocation and disbursement of funding sources for their execution. Good financial management practices lay the foundation for accountable institutions, which is especially important in the education and training sectors as these often comprise a large portion of a government's budget and most citizens heavily utilize these services.

5. **Personnel management:** This element supports the identification, recruitment, professional development, retention and management of the personnel needed to staff education and training systems, including teachers, administrators and facilities staff. Services such as human resources, information systems (to track both financial and non-financial data) and performance management contribute to personnel effectiveness and improve decision-making and education and training outcomes.

6. **Infrastructure operations and maintenance:** Infrastructure for the human capital function encompasses both the physical environment that supports education and training – such as school buildings, water and electricity services and transportation access – and information and communications technology, like the internet and other connectivity systems. While costly, investing in the development and maintenance of infrastructure is crucial to increase the accessibility and quality of learning opportunities for larger portions of the population and to mitigate the disruption of educational services.

3. Emiliana Vegas and Rebecca Winthrop, "Beyond reopening schools: How education can emerge stronger than before COVID-19," The Brookings Institution, 2020, https://www.brookings.edu/research/beyond-reopening-schools-how-education-can-emerge-stronger-than-before-covid-19/.

7. Provision of services, supplies and materials: Educational spaces should be equipped with the necessary supplies for teaching and learning to take place. Knowledge sources – such as textbooks, computers and other digital media – and practical tools for hands-on learning – from basic supplies like notebooks and pencils to STEM lab equipment – must be purchased, delivered and regularly replaced to remain relevant and useful. Crucially, this element should also provide an accurate estimation of resources needed in every school or region and prevent the misuse of resources in the procurement and delivery of services and supplies.

8. Safety and security: A key responsibility of the state is the protection of educational facilities, students and staff to provide a safe learning environment. Schools may also establish safety protocols (such as drills for active shooters, earthquakes or fires) and hire dedicated security personnel as needed. Safety encompasses not only an acute sense of freedom from danger, but also access to basic needs such as meals and mental or physical health services. Moreover, during emergencies (such as extreme weather events), schools can provide shelter. storage for emergency supplies and function as triage centers for the community.

9. Communications and community outreach: The communications and outreach element serves multiple purposes, including keeping education system users informed and involved of human capital opportunities, coordinating the delivery of services, creating feedback loops for evaluation and improvement and reporting on outcomes of programs and policies. This element – if utilized with the appropriate frequency, transparency, style and channels for the context – supports building trust and accountability in institutions.

Designing and investing in institutions to generate human capital returns

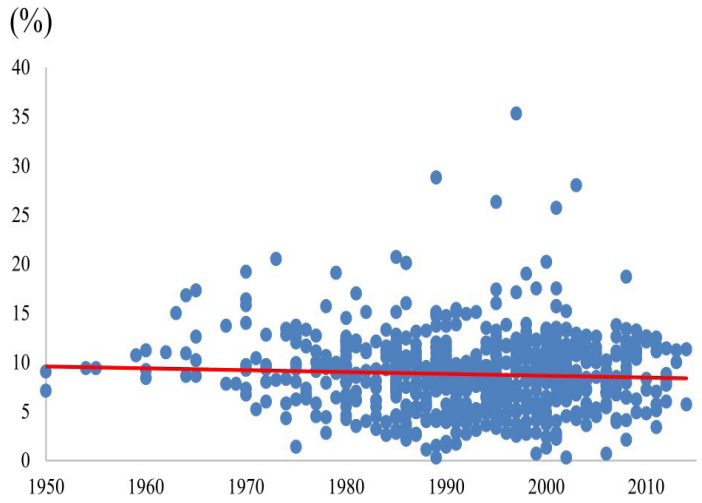
Broadly speaking, education and training systems fall along a spectrum from centralized to decentralized and this arrangement determines the entities responsible for decision-making that must be held accountable for human capital outcomes. Centralized systems are ones in which authority and responsibility are vested in a central body, often at a federal or state capital level. Decentralized systems, on the other hand, are ones where decision-making is transferred to lower levels of government, local committees or schools themselves. The Sourcebook discusses the rationale for the degree of centralization so states may determine the factors at play in their own contexts.

To deliver on human capital targets, states rely on educational institutions, which are arranged in a framework of learning tiers that is nearly universal: pre-primary, primary, secondary, tertiary or higher education and vocational. This foundational structure is the backbone institutional arrangement that governs how human capital is developed through education and training systems and upon which more nuanced and specific policies and programs can be built. Each tier has a distinct but important role to play in the achievement of human capital outcomes and state incentives, and the degree of involvement may differ at each of these tiers. **The sourcebook outlines some of these considerations and argues that the state has strong reasons to invest in these institutions as there are significant economic returns for citizens (private return) and the country and society more broadly (social return), noting that these may vary from country to country and across learning tiers.** Table 1, adapted from a 2018 World Bank research paper on "Returns to Investment in Education," demonstrates the importance of such investments.[4]

Table 1: Returns by income and educational level (%)

	Private			Social		
Per capita income level	Primary	Secondary	Higher	Primary	Secondary	Higher
Low	25.4	18.7	26.8	22.1	18.1	13.2
Middle	24.5	17.7	20.2	17.1	12.8	11.4
High	28.4	13.2	12.8	15.8	10.3	9.7
Average	25.4	15.1	15.8	17.5	11.8	10.5

Figure 1: Rate of return to schooling over time



4. George Psacharopoulos and Harry Anthony Patrinos, "Returns to Investment in Education: A Decennial Review of the Global Literature," The World Bank Group, 2018, http://hdl.handle.net/10986/29672.

The economic benefits for countries to invest in education, especially early on in a student's academic career, are well established. In many countries, the demand for knowledge and skills from the workforce outpaces the supply of educated or skilled individuals. At the same time, the rate of return of investments in schooling has diminished over time (see Figure 1).[5] These two findings suggest that it is important for countries to consider their contexts and tailor their education and training investments to the needs of their communities to determine where and how they should invest in education with a view to societal, economic and public sector value.

Non-state providers of education and training

When resource constraints, poor planning or lack of capacity impede the state's ability to invest in and deliver on its priorities, citizens may turn to private or community schooling arrangements that are better equipped to fulfill their needs. Similarly, the state can explore partnerships with the private sector, NGOs and bilateral or multilateral organizations to foster improved delivery, coverage or performance outcomes and other benefits for citizens.

Development phases

ISE has developed a typology of development phases – Compliance, Performance, Value and Agility — that delineate the varying levels of service delivery within a given education and training system. The progression through these phases is not linear and most states may look more like hybrid systems, with features from various phases. These phases are nonetheless useful as a point of reference to which states can approximate the performance of their education and training systems before considering development goals, tools and strategies to facilitate improvements.

Using the Sourcebook to Design Solutions to Human Capital Challenges Through Education and Training Systems

As a practical manual for human capital development, the sourcebook analyzes the most pressing, global human capital issues and offers case studies, tools and strategies to design contextual solutions. The sourcebook highlights analysis on impediments to effective education and training provision and explores a range of important issues in human capital from demographic shifts, migration and displacement, international actors and interventions to climate change and extreme natural events, among others.

To better equip states to understand these challenges and chart their own paths for development, the Sourcebook also lists benchmarking tools that identify needs and assets, evaluate performance and can help policymakers set targets for improvements in education and training systems. The discussion of development strategies presents approaches and case studies to illustrate the wide range of options available to achieve success in education and training sector reform.

We will highlight two of several crucial issues outlined in the sourcebook – **skills and qualifications mismatch** and **barriers to**

5. Ibid.

Developmental Phases of Human Capital Systems

Compliance

States focus on access to education through enrollment and attendance policies or compulsory schooling mandates. The expected outcomes in a compliance phase are consistent enrollment and attendance of students and teachers. The quality of education, as well as issues of equity and inclusion, may not be priorities in this phase.

Performance

States establish standardized expectations for skill acquisition and learning achievements, which are monitored through comparative assessments. In this phase, instruction focuses on skill mastery and subject matter expertise, and targeted academic interventions are implemented to improve student performance.

Value

This phase recognizes a multi-dimensional definition of human capital that goes beyond skills and knowledge. Education and training systems develop socio-emotional competencies and interpersonal skills like leadership, relationship-building, advocacy and empathy, all of which enable students to make civic and social contributions in society.

Agility

Education and training anticipate and are responsive to state and market needs by equipping learners with "flexible mental models" and lifelong learning opportunities. This flexibility enables current and future job seekers to adapt to everchanging workforce needs, compete more adeptly in the labor market and take advantage of a diverse array of economic opportunities

access to education – and provide useful examples of benchmarking frameworks and development strategies from the relevant chapters to illustrate how the Sourcebook may be applied in real contexts.

Solving the skills and qualifications mismatch problem

At the crux of the value proposition for the human capital function is that investing in human capital generates economic returns. However, if the human capital supply does not meet market demands, then the economic benefits will be reduced. This problem is known as a skills and qualifications mismatch – or the discrepancy between the skills or education sought by employers and those possessed by individuals. Often, this mismatch indicates that education and training systems are not providing the skills and knowledge needed by the labor market, or that the economy does not create jobs that correspond to the skills of individuals.[6]

There are several types of mismatch, which are outlined in the sourcebook in detail, but any form of mismatch signifies poor creation or utilization of human capital. This issue impacts not just an individual's labor prospects, but also the economy and society at large by increasing unemployment and reducing productivity and competitiveness, and therefore limiting access to markets and job creation. According to the World Economic Forum, closing the global skills gap could add $11.5 trillion to global GDP by 2028.[7] The scale of this social and economic impact means that states should endeavor to create solutions that address the root causes and consequences of the mismatch problem.

Workforce assessments

Diagnosing the source of the mismatch problem is an important first step and the sourcebook outlines workforce assessment tools and resources for this purpose. If a state has reliable data collection, commonly available labor statistics may be used to conduct statistical analyses of the workforce. Other measurement approaches include self-assessments by employees and employers, direct assessments (such as skill-specific tests), normative evaluations or the use of national labor force surveys (LFS). Data collected from LFS are the main source of key labor market and workforce indicators. The sourcebook provides guidance and resources for the design of LFS and other assessment tools. Tools for the measurement of workforce strengths and needs are essential for human capital stakeholders to gain insight into the causes, extent and economic impact of the mismatch problem and to formulate effective and evidence-based economic and social policies to tackle this issue.

Addressing mismatch

As there is no one-size-fits-all development strategy to address the skills and qualifications mismatch problem, the development strategies chapter outlines contextual considerations and examples of structural reforms to guide states to address their specific challenges. The Sourcebook emphasizes that understanding factors like cultural norms, institutional frameworks and capacity, political environments and physical and technical infrastructure must provide the starting point for policy action. In addition, the Sourcebook points out that states must work to balance stakeholder needs across civic, state and market actors to ensure broad support and sustainability of reforms. This is especially important when addressing the mismatch problem in which the needs and capabilities of government, employees and employers must be aligned.

To keep pace with and anticipate labor market demands, the Sourcebook recommends that states create lifelong learning and vocational training programs and prioritize the teaching of certain types of agile skills and knowledge, such as technological fluency, whose demand will continue to accelerate in the coming decades. To illustrate these recommendations in practice, the Sourcebook outlines successful cases of reform and provides resources for further reading about their implementation. For example, the national training programs in Brazil and Chile demonstrate how states can work closely with local industries to facilitate appropriate skilling. Another case highlights how the Mexican government went outside of international best practices to improve its vocational education and training system model to better fit the needs of local workers and employers.

Beyond structural reforms of education and training systems, governments may also look to public-private sector partnerships (PPPs) to address the urgency of implementing skills misalignment reforms. PPPs can speed up the development of training programs to better match private sector needs and build direct employment pathways. Setting financial incentives and subsidies for the private sector to upskill their own workforces may also be a worthwhile investment for states. The Sourcebook presents a few case studies in this regard, demonstrating how private industry can work closely with domestic partners on workforce development programs.

6. "What is skills mismatch and why should we care?," International Labour Organization, 2020, https://www.ilo.org/skills/Whatsnew/WCMS_740388/lang--en/index.htm.

7. "Closing the Skills Gap Accelerators," World Economic Forum, https://www.weforum.org/projects/closing-the-skills-gap-accelerators.

Barriers to access

A state may develop a world-class education and training system but if people are precluded from accessing these services, then the goals of human capital development will not be met. In many cases, the segments of the population that need the largest human capital investment have the hardest time taking advantage of these opportunities. The Sourcebook examines the complex problem of ensuring equal access to education and training by analyzing institutional barriers or structural impediments such as the cost-disease of education, teacher shortages and lack of technology; situational barriers or social and environmental circumstances such as violence, geographic and socio-economic factors, discriminatory exclusion, climate change and extreme natural events; and dispositional barriers, which are determined by previous learning experiences and personal disposition towards learning.

Measuring and understanding barriers to access

The sourcebook presents benchmarking frameworks and tools useful for system-level analyses of education sectors that can be used together to present a holistic overview of the nature and extent of the barriers to access, as well as opportunities to address them. International benchmarking frameworks from the World Bank, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the U.N. Sustainable Development Goals (SDGs), for example, use education and labor market data to calculate indicators to assess education. These include enrollment rates and learning poverty,[8] literacy rates and mean years of schooling,[9] school completion rates and participation of youth and adults in education and training.[10] These indicators not only help structure data but also link it to development targets. However, some states may face a significant challenge in collecting accurate information and data reliability issues can make it difficult to report on these indicators as well as undermine insights that can be drawn from them.

To add more context to indicator outcomes, ISE's Asset Mapping tool can be used to identify existing needs and capabilities (assets) in a particular area and the obstacles to using those assets to realize policy goals. When applied to school regions, the asset mapping methodology can make use of geospatial technology to determine the distribution of learning facilities and layer information about socioeconomic, geographic, political and infrastructural conditions that affect access to resources.[11] Coupled with development data, this information can be used to understand causes of reduced access and to address inequities, especially among disenfranchised groups or regions, by optimizing the use of existing resources.

Strategies for increasing access

While barriers to access can be measured and their causes hypothesized, the solutions to this issue – and where to begin implementing them – may be hard to pinpoint. The *Development Strategies* chapter of the Sourcebook highlights useful frameworks to break down complex challenges into smaller, more manageable elements. ISE also advocates for the careful consideration of the sequencing of reform interventions, particularly when there are many competing priorities and pathways to development. Understanding the interdependencies of the human capital function can also help to untangle the sequencing riddle. In a case study from Albania, for example, city leadership decided to invest in the infrastructure of public parks and schools for children first and saw several positive outcomes related to increased access to education, better staff training and even financial gains in the city budget.

Future of the Function and Conclusion

Often, a lack of local capacity is blamed as the culprit for poor development outcomes. In reality, if a state strengthens its human capital function, the acquisition of knowledge and skills would help to overcome this perceived talent and capacity gap. This issue can be self-perpetuating, as human capital is often a precondition for successful interventions. A state's policies and institutions are only as good as the people who design and operate them, its citizenry only as strong as the collective well-being and prosperity and the market only as dynamic as human capital is productive.

Education systems and the information technology revolution

The speed of education and training reform usually does not match up with the exponential pace of industry and technology change. Current education and training systems are still deeply rooted in traditional frameworks shaped by older economic models. While strides have been made in updating curriculum content and teaching methods, many states still struggle with poor human capital outcomes and a misalignment of skills to the job market. For this reason, the Sourcebook emphasizes that education and training should develop the key traits of agility and resiliency to mitigate human capital losses in an increasingly unpredictable and disruptive environment. In addition, policymakers should not overlook longer-

8. For the World Bank's data, see here.
9. For UNESCO's data, see here.
10. For data on SDG 14.1, see here.
11. To learn more about asset mapping from ISE, see here.

term trends – such as structural inequalities, climate change and demographic shifts – as key drivers that will continue to shape the future of education.[12]

Acknowledging the increasing diversity of learners and workers as an important trend, states should also look for ways to facilitate non-linear career trajectories and provide multiple entry and exit points in education systems and the labor market. Stackable credentials are a potential strategy to mitigate the erosion of human capital that disruptions or inconsistent trajectories may cause. These credentials are skills or knowledge certifications that can be obtained in shorter periods of time over an individual's lifetime and will reflect the accrued qualifications acquired by a person at different points. Stackable credentials can help people move horizontally or vertically along career pathways and save resources by ensuring that individuals do not need to spend time or money on learning the same material more than once.

Another key trend is the increase in digital disruptions over the next several decades, which highlights the continued need for upskilling and re-skilling to better equip people to use technology in the workplace. Beyond letting technology dictate human capital needs, states should equally focus on how technology can be used to advance their vision of public value. Coupled with transparent communication and ensuring connectivity access, technological tools have enormous potential to promote societal interests such as racial equity, democracy and accountability. States should plan to use technology strategically to serve public interests and strengthen the social compact with citizens.[13] As the Sourcebook points out, societal well-being is both an important determinant and outcome of human capital development.

Lastly, states must recognize the value of socio-emotional capabilities in promoting current and future employability. Data indicates a continued massive deficit of social and emotional capabilities in today's workforce and shows the need for social and emotional skills – such as leadership, communication, initiative-taking and empathy – will accelerate.[14] ISE recommends that states prioritize this type of learning when re-evaluating their education and training goals. The socio-emotional dimension of human capital will not only allow individuals to adapt to technological change but will also enable humans to add value where machines fall short in the coming industrial revolutions.[15]

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12. Emily Boudreau, "What the Future of Education Looks Like from Here," Harvard Graduate School of Education, 2020, https://www.gse.harvard.edu/news/20/12/what-future-education-looks-here.

13. Ibid.

14. Jacques Bughin, et al., McKinsey Global Institute.

15. Jennifer Radin et al., "Closing the employability skills gap," Deloitte, 2020, https://www2.deloitte.com/us/en/insights/focus/technology-and-the-future-of-work/closing-the-employability-skills-gap.html.