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HBL P@SHA ICT Awards 2024 Islamabad | P@SHA Pakistan IT Industry Association

Building a Future-Ready Workforce →

Whitepaper

HBL P@SHA ICT AWARDS 2024
SKILLS ROUNDTABLE
ISLAMABAD

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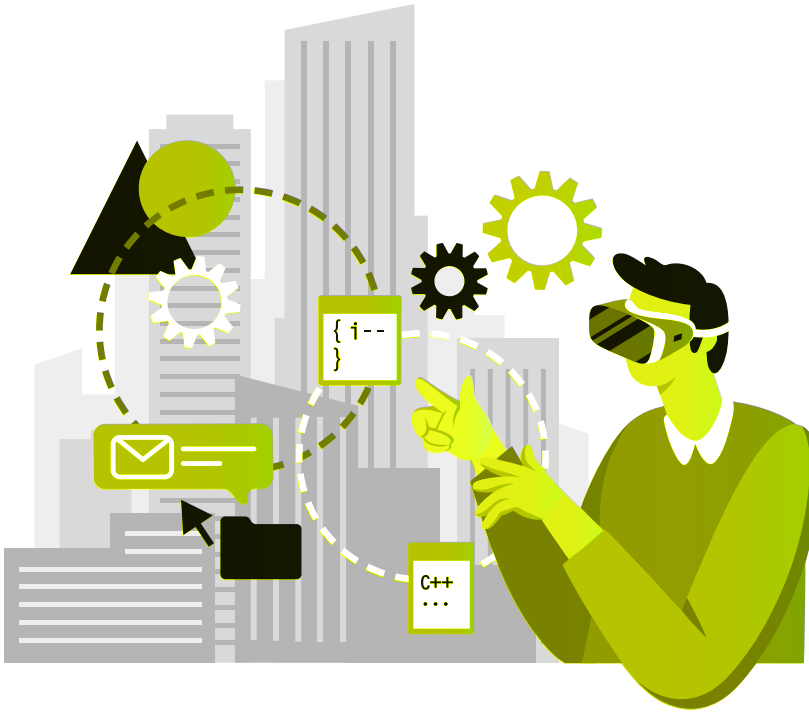
Executive Summary

This whitepaper aims to provide an in-depth analysis of the Skills Roundtable convened on the occasion of P@SHA's annual flagship event, the HBL P@SHA ICT Awards. Organized by the P@SHA Secretariat, this event serves as a vital platform where government representatives, industry leaders, policymakers, and academicians converge to engage in meaningful discussions about the challenges faced within the IT ecosystem.

This year, the Skills Roundtable's theme was **"Building a Future-Ready Workforce".** The discussion was initiated with a presentation of a case study highlighting the recently launched Techlift Impact Assessment Report, a collaboration between P@SHA and the PSEB - Tech Destination. Techlift represents a landmark initiative as the first-ever industry-led training program in the country, funded by the government. It was implemented by a consortium of 22 leading IT companies led by Contour Software, all working under the strategic framework provided by P@SHA. The case study elaborated on the innovative structure of the Techlift program, showcasing its significant impacts on employment generation, return on investment (ROI), and contributions to export growth.

Following the presentation, the roundtable shifted focus to the core discussion: strategies for creating a workforce equipped to meet the future demands of the IT industry. Participants exchanged insights and predictions, contributing to a collaborative effort aimed at preparing for the evolving challenges and opportunities that the sector is projected to face over the next five years. Speakers identified key factors contributing to the current skills gap and outlined actionable steps that stakeholders can take to ensure a workforce ready to thrive in the future landscape of technology. The discussions at the roundtable yielded several key findings and actionable recommendations for stakeholders involved in workforce development. First, the speakers underscored the necessity of train-the-trainer programs to equip educators such as professors, with the latest skills and knowledge, ensuring they can effectively prepare the next generation. Additionally, the importance of high school interventions was emphasized, highlighting the need for early engagement with students to spark interest in technology careers.

Establishing centers of excellence focused on targeted technology fields was recommended to foster specialized skill development and innovation as well as . Furthermore, it was suggested that Techlift-like programs should be expanded to provincial governments to harness local talent and meet regional demands. Lastly, there was a consensus on the need to prioritize quality over quantity in training programs, ensuring that graduates possess the skills and competencies essential for success in the IT sector. By implementing these recommendations, stakeholders can work towards creating a robust and agile workforce prepared to meet future technological challenges.



Introduction

In an era characterized by rapid technological advancements and evolving market demands, workforce readiness has emerged as a critical focal point for the Information Technology (IT) industry. As businesses increasingly rely on innovative solutions and digital transformation, the gap between the skills required by employers and those possessed by job seekers has widened. This skills gap poses significant challenges to the growth and sustainability of the IT sector, necessitating a concerted effort from all stakeholders—industry leaders, educational institutions, and government entities—to collaboratively develop strategies that ensure a proficient and future-ready workforce.

The Skills Roundtable aimed to address the pressing need for workforce readiness by facilitating an open dialogue among key stakeholders in the IT ecosystem. The objectives were to share insights from the recently launched Techlift Impact Assessment Report, explore innovative training models, identify the root causes of the skills gap, and collaboratively develop actionable recommendations for preparing the workforce for the challenges anticipated over the next five years.

The roundtable gathered a diverse group of participants, including industry leaders from top IT firms, representatives from esteemed institutions. This blend of perspectives ensured a comprehensive examination of the issues at hand and the formulation of well-rounded solutions. The participants brought a wealth of experience and knowledge, reflecting the collaborative nature required to effectively tackle the challenges facing the IT sector.

This whitepaper is structured to first summarize the key discussions and findings from the roundtable, followed by a detailed analysis of the skills gap and the impact of this gap on the economy identified by speakers. It sheds light on the various challenges pointed out by the different stakeholders but the purpose of this whitepaper is to remain focused on a chosen few that are deemed more contributing factors leading to the skills shortage in the country. It will then present best practices and innovative strategies for workforce development, along with specific recommendations aimed at fostering a more capable and agile IT workforce. By synthesizing insights from industry leaders and academia, this document seeks to serve as a valuable resource for stakeholders committed to enhancing workforce readiness in the IT and ITeS sector.

Current State of the Workforce

Analysis of Existing Skill Gaps

The current state of the workforce reveals significant skill gaps that hinder the growth and competitiveness of the IT sector. A comprehensive analysis, done through the Skills Requirement Survey conducted in 2022, indicates that key industries, such as software development, cybersecurity, and data analytics, are particularly affected by these gaps. Many organizations struggle to find candidates with the necessary technical skills, such as proficiency in programming languages, cloud computing, and data management. However, more importantly, a lack in soft skills and the ability to sell oneself to the recruiter is one of the leading causes of unfilled positions and increased reliance on on-the-job training.

Additionally, demographic trends highlight disparities in access to technology education, with women-who currently represent only 18% of the IT workforce-being one of the underrepresented groups facing barriers to entry in the IT workforce. This lack of diversity not only limits the talent pool but also stifles innovation and creativity within the industry leading to disappointment and frustration in the workforce. The implications of skill gaps extend beyond individual organizations, significantly impacting the broader economy. Productivity losses are a direct consequence of unfilled roles and the need for existing employees to take on additional responsibilities, leading to burnout and decreased job satisfaction.

Impact of Skill Gaps on the Economy

Moreover, the current trainer force is often under skilled and underpaid, which exacerbates the skills gap issue. Many professors and educators lack up-to-date industry experience due to the Higher Education Commission's (HEC) stringent eligibility criteria, which emphasize academic qualifications over practical industry exposure. As a result, there is often a disconnect between the theoretical knowledge imparted in classrooms and its practical application in the professional world. To effectively prepare students for the demands of the IT sector, it is essential for educators to engage in continuous professional development, including hands-on industry work. This involvement would enable them to gain a deeper understanding of current industry processes, tools, and technologies, thereby enhancing the quality of education they provide. Despite producing approximately **35,000 graduates** annually, many of these individuals enter the job market without the relevant skills or practical experience that employers seek, leading to a situation where the sheer volume of graduates becomes "noise" rather than a signal of workforce readiness.

Furthermore, the disparity between job openings and job readiness creates a paradox where companies are unable to capitalize on growth opportunities due to a lack of qualified candidates. As per the Skills Requirement Survey 2023 there are **88000+ job** openings across the IT industry in Pakistan. This situation not only stifles economic growth but also contributes to rising unemployment rates among job seekers who lack the requisite skills for available positions, ultimately hindering the overall advancement of the IT sector and the economy as a whole. Addressing these skill gaps is essential for fostering a more resilient and dynamic workforce capable of meeting the demands of an increasingly digital world.

Identified Challenges Contributing to Skill Gaps

Misalignment of Industry Needs and Educational Outputs

The disparity between industry needs and educational outputs is increasingly evident, as employers continually seek candidates with specific skill sets that are often not aligned with the training provided by academic institutions. Despite the significant number of graduates produced—approximately **35,000** each year—many lack the practical, hands-on experience and relevant technical knowledge that today's IT jobs require.

Root Causes of Skill Gaps

This misalignment has led to a workforce that is not adequately prepared to address the immediate demands of the industry, resulting in a persistent skills gap that hinders innovation and competitiveness. Many educational programs still rely on outdated curricula that do not reflect current industry practices or emerging technologies, leaving graduates ill-equipped to navigate the realities of the ever-evolving job market.

Among many reasons, it was discussed by academic experts that low compensation for professors limits their ability to deliver high-quality, industry-relevant education. Without competitive salaries, universities struggle to attract professionals with practical experience, leading to a disconnect between academic teachings and the skills needed in the job market. Professors may lack motivation or resources for professional development and often rely on outdated, theoretical materials. This reduces opportunities for industry collaboration and leaves students unprepared for real-world challenges.

Moreover, from the beginning, universities often place a strong emphasis on encouraging students to pursue entrepreneurship, sometimes at the expense of equipping them with the skills and knowledge needed to excel in established companies. While fostering an entrepreneurial mindset is valuable, it can lead to a lack of focus on training students for roles in structured corporate environments where they can gain essential industry experience, mentorship, and career growth opportunities. As a result, students may graduate without the comprehensive skill sets required to thrive in larger organizations, which limits their ability to navigate complex business ecosystems before venturing into entrepreneurship.

Lack of Appropriate Training Opportunities

Most of the training programs conducted by government institutions and training institutes often suffer from poor implementation and a lack of focus on essential soft skills. While the technical aspects of the training may be covered, the practical application of the skills learned is frequently overlooked, leading to gaps in real-world readiness. Additionally, soft skills such as communication, teamwork, leadership, and problem-solving, which are critical for career success, are either insufficiently addressed or completely ignored. This results in participants who may have theoretical knowledge but are ill-equipped to perform effectively in professional environments that demand both technical expertise and interpersonal skills.

The Burden of Training on Employers

As a result of these educational shortcomings, the burden of training often falls on employers, who must invest significant time and resources into upskilling and even skilling new hires. Companies face numerous challenges in this regard, including high training costs, reduced productivity during the training period, and the necessity of developing tailored training programs to bridge the skills gap. This may also result in high employee turnover rate as trainees may leave for better higher paying jobs after the training period. This dynamic can strain organizational resources, particularly for smaller businesses that may lack the financial capability to sustain extensive training initiatives. Moreover, this reliance on employers to fill the gaps in academic training underscores the urgent need for reform in education systems to create a more robust pipeline of talent that meets industry requirements.

Promoting Lifelong Learning

Lifelong learning emphasizes the continuous development of skills and knowledge throughout an individual's life. Encouraging this mindset helps individuals stay adaptable in a rapidly changing job market, equipping them with the necessary tools to succeed in evolving industries. Up-skilling and re-skilling initiatives focus on enabling the workforce to acquire new competencies. Up-skilling of existing workforce to perform better in current roles, while re-skilling individuals from different backgrounds for new roles, particularly in response to technological advancements and shifting market demands.

Online learning platforms offer flexible, accessible avenues for individuals to enhance their skills. Resources like MOOCs (Massive Open Online Courses) provide access to a wide range of courses, allowing learners to acquire specialized skills or knowledge at their own pace, overcoming barriers of time and location.

Community-Based Training Centers (Centers of Excellence)

Establishing community-based training centers, often called Centers of Excellence, offer localized, hands-on training opportunities that serve as hubs for upskilling and reskilling within communities. These centers provide specialized programs tailored to regional industry needs, fostering relevant skill development. Expanding the number of such centers and ensuring they are inclusive—catering to diverse groups such as women and marginalized communities—will promote learning and entrepreneurship. Additionally, addressing financial constraints through affordable access or subsidies is essential to ensure that individuals from all socioeconomic backgrounds can benefit from these training opportunities ensuring equal learning and growth opportunities.

Proposed Solutions and Strategies

Reforming the Education System

Industry - Academia Collaboration

To stay current with industry trends, professors should have opportunities to work in industry settings through faculty placement programs. These initiatives would allow educators to gain hands-on experience, which they can integrate into their teaching, ensuring that students receive industry-relevant education. Faculty members would return to the classroom equipped with updated knowledge and practical examples to enrich their lectures.
Universities can also encourage industry partnerships that allow professors to work on projects that generate revenue, such as consulting, joint research, or product development. These partnerships not only benefit the faculty but also enhance the university's innovation ecosystem. By working closely with the industry, professors can lead projects that solve real-world problems, driving both knowledge creation and commercialization.

Similarly, academic research should be oriented toward commercialization to make it sustainable and impactful. Universities need to prioritize research projects that have commercial potential, encouraging innovation that meets real-world demands. By focusing on turning research into marketable products or solutions, universities can attract more funding and foster a culture of innovation and entrepreneurship.

Universities should also establish innovation hubs, labs, and joint ventures (JVs) to foster collaboration between academia, industry, and government. Special Technology Zones (STZAs) within universities can become centers of innovation where research is turned into commercially viable products. These ecosystems encourage entrepreneurship among students and faculty while contributing to the local economy.

Incorporating industry-expert mentorship into senior year projects connects students with real-world applications of their academic knowledge. Industry professionals can guide students through the practical aspects of their projects, ensuring that they are relevant to current market demands. This collaboration will help students develop problem-solving abilities and expose them to industry practices, improving employability upon graduation or investment for a business.

Creating stronger partnerships between academia and industry is essential for aligning curriculum with industry needs. Universities should develop scalable frameworks for collaborations, where industry leaders can influence the design of academic programs, ensuring that the knowledge imparted is both current and practical. This bridge would facilitate student internships, guest lectures, and research opportunities directly tied to industry challenges.

In addition, education systems need to shift from a purely theoretical approach to one that integrates both soft and hard skills. Soft skills such as communication, teamwork, leadership, and problem-solving are crucial for career success in the IT sector, complementing technical or "hard" skills. This balanced focus will better prepare students for real-world challenges and professional environments where collaboration and interpersonal abilities are key.

Co-op Programs

Cooperative education (co-op) programs, like the recent P@SHA and PSEB Coop Program, allow students to alternate between academic study and real-world work experience. These programs give students practical exposure and valuable work experience in their field of study before graduation. Co-op programs foster better industry readiness and make students more competitive in the job market by combining theory with practice.

Government Initiatives for Workforce Development

Governments play a critical role in shaping policies that support skill training and workforce development. These frameworks should promote collaboration between educational institutions, industries, and training providers to ensure alignment with market needs. Policies could include mandatory skill development components in curricula, incentives for companies to provide on-the-job training, and funding for skills-based learning initiatives. Such frameworks ensure that education and training systems are responsive to the evolving demands of the labor market.

TVET programs offer an alternative to traditional academic pathways, providing opportunities for individuals to enter high-demand fields such as manufacturing, healthcare, and IT. Expanding access to vocational training helps create a more skilled and diverse workforce. GIZ's ongoing collaboration with NAVTTC to improve the TVET sector of Pakistan. The focus is on improving the scalability of the programs and quality of instruction, and establishing two Centers of Excellence for IT to encourage training in emerging technologies and industry-relevant skills. Moreover, this collaboration also includes conducting a skills survey with P@SHA that will help identify in-demand skills so TEVTAs can conduct more useful training.

Additionally, a locally governed certification system developed through partnerships with associations like P@SHA, would ensure alignment with domestic industry needs while maintaining international standards. Such certifications would ensure that graduates possess industry-recognized qualifications, making them more competitive in the job market. By focusing on areas like software development, cybersecurity, data analytics, and cloud computing, these certifications would cater to the growing demand for specialized IT skills.

⊛ Creating a Graduate Directory through LMS

Governments, in collaboration with educational institutions, can develop a centralized graduate directory through a Learning Management System (LMS). This directory would allow industries to access a database of skilled graduates across various fields, facilitating smoother recruitment processes. The LMS could track graduates' skills, certifications, and career readiness, ensuring that employers can find talent that matches their specific requirements. Such a system would also help graduates showcase their qualifications to a broader range of employers and increase visibility in the job market.

⊛ Techlift-Like Provincial Programs

Programs modeled after initiatives like Techlift, which focus on upskilling and reskilling through technology training, should be implemented at the provincial level. These programs provide targeted training in high-demand areas such as coding, digital marketing, and software engineering, catering to local industry needs. By decentralizing such initiatives and rolling them out across provinces, governments can ensure that training opportunities reach a wider population, including rural and underserved areas. Provincial-level programs also allow for customization of curricula to suit regional economic activities and industry demands, promoting inclusive workforce development.

Incentives for Continuous Education

To encourage lifelong learning, governments and industries can provide incentives for continuous education. This could include tax breaks for companies that invest in employee education, tuition reimbursement programs, or scholarships for individuals pursuing further studies. Encouraging continuous education helps keep the workforce adaptable and prepared for emerging challenges in rapidly changing industries.

Upscale Both Private and Public Education Systems

Governments need to focus on scaling up both private and public education systems to ensure that high-quality education is accessible to all. This includes increasing funding for public schools, improving infrastructure, and implementing updated curricula that incorporate the latest industry trends. Private institutions should also be incentivized to innovate in education and collaborate with public institutions for wider impact.

Integrating STEM and IT at K-12 Educational Institutions

To prepare students for future jobs, integrating Science, Technology, Engineering, and Mathematics (STEM) education, along with Information Technology (IT), into the K-12 curriculum is crucial. Early exposure to STEM and IT subjects builds foundational skills that are essential in a technology-driven world. By embedding these disciplines into the education system from an early age, students are better equipped for higher education and the workforce, promoting innovation and technological advancement

Techlift Case Study and Success Stories

Techlift is a successful example of a workforce development training initiative aimed at equipping individuals with in-demand digital and technical skills. Launched as a response to the increasing need for tech-savvy professionals, Techlift has become a model of impactful collaboration between government bodies, industry leaders, and educational institutions. By focusing on high-demand fields such as Web Engineering, Full Stack Development, Cloud Engineering, Quality Assurance and Mobile App Development, Techlift has made significant strides in closing the skills gap and creating pathways for employment in the technology.

One of Techlift's core strengths lies in its collaborative approach. The program was led by a consortium of leading tech companies, with P@SHA's support, creating a robust ecosystem for skill development. Industry partners provide input on curriculum design and facilitate mentorship opportunities, ensuring the program remains aligned with market needs. This program has been critical in delivering relevant, high-quality training that meets both industry standards and learner needs.

A. Innovative Training Model

Techlift's training model stands out for its combination of practical and flexible learning approaches. The program uses a blended model, integrating both online and in-person instruction to make training accessible to a broader audience. Hands-on training on industry-relevant skills combined with soft skills training allows participants to apply their knowledge in real-world contexts, making the learning experience more impactful. Additionally, Techlift offered personalized learning tracks, enabling individuals from non-IT backgrounds to pursue specialized IT skills within fields such as software development, UX/UI design, or cloud computing based on their career aspirations and current market demand.

B. Outcomes and Impact of Implemented Solutions

The impact of Techlift has been evident in the success stories of its graduates. Many participants have secured high-paying jobs in tech firms earning up to PKR 80,000 or have successfully launched their startups, contributing to the local economy and creating job opportunities. The program's placement rate in tech roles has risen to 79%, as graduates are better prepared for immediate entry into the workforce. Additionally, Techlift has helped address regional skills shortages, particularly in underserved communities, making tech careers more accessible and contributing to a more inclusive and skilled workforce in the digital economy.

Conclusion

In summary, effective workforce development requires a multifaceted approach, with initiatives focused on education reform, government-backed training programs, and collaborative models like Techlift. Reforming the education system to integrate both hard and soft skills, connecting academia with industry, and fostering continuous learning through policies and incentives create a robust foundation for skill development.

Government initiatives, particularly in technical and vocational education, are essential for building an inclusive, adaptable workforce, with local certifications and directories further strengthening job-market alignment. Programs like Techlift demonstrate the power of industry-led training models, showing how targeted, industry-aligned programs can drive meaningful impact, equipping participants with valuable IT skills and improving employment outcomes. Together, these strategies and solutions contribute to a more skilled, innovative, and resilient workforce ready to meet the challenges of a dynamic global economy.

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