

Critical Evaluation of current Policies and Practices in TVET and its impact on Employment and Industry in Pakistan

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Abstract:

This study critically evaluates Pakistan's Technical and Vocational Education and Training (TVET) policies, emphasizing their effectiveness and impact on employment and industry. Despite policy reforms, challenges persist, including outdated curricula, weak industry linkages, and limited quality training access. Misalignment between training programs and labor market demands leads to a skills mismatch and youth unemployment. Policies like the National Skills Strategy and public-private initiatives attempt to address these issues but suffer from fragmented implementation and limited scalability. Integration of digital skills, green technologies, and entrepreneurship remains insufficient to meet evolving market demands. Through SWOT, EETH, PESTEL, and GAP analyses, the study identifies gaps and recommends fostering industry-academia linkages, enhancing governance, improving funding mechanisms, and leveraging technology to strengthen TVET. Holistic reforms are urgently needed to align TVET with local and global industrial demands, ensuring sustainable economic and industrial growth in Pakistan.

Key words:

TVET, Skills mismatch, Industry linkages, Policy reforms, Technology integration.

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Introduction

Pakistan ranks as the fifth most populous country in the world with a population of around 245 million. Out of this a huge portion i.e 64 % population is under the age of 30 (Economic Survey of Pakistan, 2023). This bulge can either act as a time bomb or a demographic dividend, contingent on the engagement of youth in productive activities. The reason being the high unemployment rate of 6.3%. The worsening economic conditions such as low economic growth, fiscal imbalances, lack of opportunities have contributed to many critical issues affecting all segments of society particularly youth and women. The growing desperation has resulted in the youth resorting to illegal activities including drug addiction and trafficking, human smuggling, involving in terrorist activities etc. (Habib, 2024) Women lot also bear this brunt in terms of exploitation, domestic violence, divorces, unsafe working environment. (ADB, 2016). Furthermore, In Pakistan a significant portion of population i.e around 29.75 % of individuals are single. (Daily Pakistan) More than 10 million women are unmarried which has negative repercussions on the social and domestic fabrics. (Bureau of Statistics). The economic pressures exacerbated by the systemic gender inequality and social neglect has turned the youth into a potential threat. This situation requires a positive youth engagement to turn this resource into economically productive and socially responsible citizens. (Alisha, 2023)

The education sector is divided into two streams namely general education and TVET sector. The general education framework consists of primary, secondary and higher secondary level. After which either education can be pursued in general education or TVET. The later differs from general education in its methodology as it focuses on imparting practical skills rather than theoretical knowledge. There exists a disparity between both the streams in terms of enrolment as well as productivity. Presently only 4% of youth population is enrolled in skill education sector as compared to 69% in general education. (NSIS, 2022). Notwithstanding with the fact that low enrolment in TVET is attributed to many factors such as limited number of institutes, outdated curricula, weak enforcements, public mistrust, the employability absorption of TVET is far better than general education and TVET graduates. The TVET employment data indicates that in TVET sector, 70% of graduate get employment generating 80% of remittances (GIZ/BEO statistics 2023). keeping in view the great significance of TVET sector on economic indicators it can be deduced that investment in this sector is need of the hour. The relevance of TVET further get strength given the fact that Pakistan produces 0.45 million skilled workforces annually against the demand of 1 million (NSIS,2022). The availability of high skilled Labor has transformed Hong Kong, Singapore, Taiwan and Korea into Asian Tigers.

An effective TVET sector has the potential to ameliorate the dismal economic and social conditions of the country. (Ministry of Manpower, Singapore)

Background

Pakistan's TVET system is regulated through more than 13 acts/laws at federal and provincial level (NSIS). The present TVET regime gained momentum from Musharraf period with the establishment of the National Vocational and Technical Education Commission (NAVTEC). General Pervez Musharraf's government, in 2005, responded to Pakistan's urgent need for a skilled workforce to address growing unemployment, support industrial growth, and prepare the country for globalization. Recognizing the gap between market demands and workforce skills, NAVTEC was tasked with streamlining and modernizing the fragmented TVET sector. The government aimed to empower the youth, alleviate poverty, and boost economic productivity through skill development. At the time, the Musharraf administration allocated a significant portion of its development budget to education and skill enhancement, with an emphasis on aligning technical and vocational training with industry requirements. In its initial years, NAVTEC received PKR 1.6 billion (approximately \$27 million) under the Public Sector Development Programme (PSDP) to expand TVET infrastructure, update curricula, and initiate training programs. This budget reflected the government's commitment to bridging the skills gap, though resource constraints and limited institutional capacity hindered full implementation. Despite challenges, NAVTEC marked a shift in Pakistan's policy focus, emphasizing human capital development as a cornerstone for economic reform and social empowerment during Musharraf's era.

The NAVTTC Act 2011 of Pakistan established the National Vocational and Technical Training Commission (NAVTTC) as an autonomous body under the Federal Government. The purpose was to promote skill development and technical education to enhance employability and standardize TVET qualifications in line with national and international standards. It was meant to formulate policies, give a strategic guidance, establish National Vocational Qualification Framework and promote Public Private Partnership etc. However, the bleak picture in terms of statistics of the demand-supply gap, public perception and economic indicators is an evidence that there is a need for major course corrections.

The TEVTA Strategy 2009-2013 was developed in Pakistan to align technical and vocational education with national and international demands. Its main objectives were aimed at improving the quality, access, and relevance of technical and vocational training to support economic development. This provided an impetus to focus on competency-based learning and a paradigm shift from conventional methods of training.

This strategy aimed to transform Pakistan's TVET sector into a responsive, demand-driven system capable of equipping individuals with skills for sustainable livelihoods and contributing to the national economy. However, the strategy despite a comprehensive theoretical framework faced implementation challenges such as limited industry linkages, outdated curricula etc hindering alignment with global Labor market needs. The sector also suffers from inadequate infrastructure, insufficient funding, and a shortage of qualified trainers, resulting in low-quality training outcomes. Unlike global models that prioritize public-private partnerships, innovation, and lifelong learning opportunities, Pakistan's TVET system still struggles with weak institutional coordination and limited use of modern technologies.

In 2018 the National TVET Policy of Pakistan was developed as a comprehensive framework to address the challenges in the Technical and Vocational Education and Training (TVET) sector and align it with national development goals. The policy aimed to modernize the TVET system, enhance employability, and meet the demands of a dynamic labour market. The policy developed presents a holistic picture by objectivising national commitment by key stakeholders such as government, employers, community organizations for skill enhancement, improved training paraphernalia, adherence to international training standards, strengthened public private partnerships, international recognitions and continuous improvement. However, likewise the strategy the critical gaps remains a persistent feature and there is a huge gulf between the objectives set in the policy and the situation at hand.

In pursuit of the objectives "The National "Skills for All" Strategy 2018 was introduced to modernize and enhance the technical and vocational education and training (TVET) sector in Pakistan. The strategy aimed to create a skilled workforce aligned with market demands, improve employability, and promote entrepreneurship. As envisaged in all other such documents, the promise of this strategy also remains far from real situation on ground. Be that the resource allocation or communication strategy, to name a few, to translate the objectives set into reality has been a persistent area of concern.

Besides the above legal and institutional frameworks there exist National Skill forum, National Skill Information System, Apprenticeship ACT 2018 at Federal Government and Apprenticeship Act 2022 at KP. Moreover, the following initiatives have been taken at Federal and Provincial level:

Federal Level Initiatives

- **Prime Minister's Youth Skills Development Program**
 Prime Minister's Youth Skills Development Program Launched by NAVTTC (National Vocational and Technical Training Commission), this program offers free skills training to unemployed youth, focusing on both traditional and emerging trades. **Outlay:** Rs. 19 billion
- **Hunarmand Pakistan (Skills for All) Initiative**
 Hunarmand Pakistan (Skills for All) Initiative A key component of the Kamyab Jawan Program, this initiative aims to develop skills in high-demand areas, including courses on emerging technologies, entrepreneurship, and certifications aligned with market needs. **Outlay:** Rs. 9.8 billion
- **Recognition of Prior Learning (RPL) Program**
 Recognition of Prior Learning (RPL) Program This NAVTTC program provides formal certification for informal skills acquired outside formal education, enhancing employability for those already engaged in skilled labor sectors without official credentials. **Outlay:** Rs. 2.5 billion
- **TVET Sector Support Program (TSSP) (EU-GIZ)**
 A collaborative initiative between NAVTTC and international partners (including the EU, Norway, and Germany) aimed at enhancing the quality of TVET and developing competency-based training standards across Pakistan.
 Outlay: \$62 million (Rs. 15.5 billion)
- **Matric Tech' Pathways for Integrating Technical and Vocational Education and Training (TVET) and formal education**
 Metric Tech program initiated by NAVTTC at the federal level in (08) trades/discipline (16 subjects) at 15 school of ICT, AJK and Gilgit Baltistan(GB), marks a transformative step for Pakistan's education system. By integrating technical and vocational streams with general education, this initiative aims to bridge the gap between education and employability while fostering a skilled workforce aligned with market demands.
 Outlay: (Rs. 310 million)
- **DigiSkills.pk**
 DigiSkills.pk enhances digital literacy across Pakistan by offering free online training, focusing on freelancing and entrepreneurship to reduce unemployment and boost foreign exchange. With over PKR 2 billion in government investment, courses span freelancing, technical, and soft skills, reaching over 2 million participants, including those from underprivileged areas, to bridge the digital divide.

- **Youth Empowerment Program (YEP)**
Funded by the United Nations Development Programme (UNDP), this program focuses on skill-building for youth in marginalized areas, enhancing their employability through technical training. **Outlay:** \$10.2 million (Rs. 2.5 billion)
- **Specialized Technical Training under CPEC (China-Pakistan Economic Corridor)**
This initiative encompasses joint training programs in specialized skills related to infrastructure and energy, preparing Pakistani youth for employment opportunities in CPEC projects. **Outlay:** Rs. 1 billion
- **Pak-China TVET Exchange Program.**
This partnership with China facilitates skill exchanges and technology transfers, particularly in advanced fields such as ICT, engineering, and renewable energy. **Outlay:** Rs. 0.5 billion

Provincial Level Initiatives

Khyber Pakhtunkhwa (KP)

- **KP Youth Employment Program**
Launched by the KP Government, this program offers vocational training in skills aligned with regional employment opportunities, focusing on digital, construction, and industrial sectors. **Outlay:** Rs. 11 billion
- **KP TEVTA and Skills for Youth**
This initiative provides competency-based training, targeting both traditional trades and emerging sectors, including specialized programs for women and marginalized communities. **Outlay:** Rs. 9 billion
- **Kamyab Jawan Program - KP Chapter**
Equips youth with entrepreneurial training, soft skills, and vocational training tailored to high-demand sectors in the KP region. **Outlay:** Not specified
- **Economic Revitalization in Khyber Pakhtunkhwa and FATA (ERKF)**
Provides vocational training and support to small and medium enterprises (SMEs) to create jobs and support youth employment, especially in areas affected by conflict. **Outlay:** Rs. 5 billion
- **COVID-19 Responsive Vocational Training Initiative**
In response to the pandemic, this initiative trains youth in health-related skills, PPE production, and online digital skills, supporting economic recovery and job creation. **Outlay:** Not specified

Though the above initiatives under the federal and KP government have been undertaken by investing billions of rupees, but its impact is invisible, and the economic indicators still presents a gloomy picture.

The construction industry in Pakistan, which is experiencing a boom, with major projects like CPEC creating high demand for skilled labor, requiring an estimated 1.5 million workers in the next five years. Although Pakistan has numerous technical and vocational institutes, many TVET graduates struggle to find relevant employment due to a lack of practical experience. The Apprenticeship Act of 2018 mandates companies to provide training to apprentices, with benefits such as reduced recruitment costs and increased productivity. The federal government's Public Sector Development Programme includes 923 construction-related projects, which could generate approximately 18,000 training slots for TVET graduates. Expanding work-based training opportunities through effective implementation of the Apprenticeship Act would enhance employment prospects for TVET graduates and contribute to national development.

Statement of the Problem

Unemployment remains a critical socio-economic challenge in Pakistan, with approximately 6 million youth unable to secure jobs due to a lack of skills or a mismatch between their acquired qualifications and the demands of both national and international labor markets. The Technical and Vocational Education and Training (TVET) sector has undertaken efforts to address the skills gap by providing technical and vocational training and upskilling programs. However, there are numerous reports indicating that these efforts are not adequate to address the problem. Therefore, this study aims to analyze the root causes of youth unemployment in Pakistan, particularly focusing on inefficiencies in the skills development ecosystem, identifying the gaps and evaluating the effectiveness of ongoing TVET initiatives, to propose actionable and sustainable policy solutions to enhance the employability of the youth.

Scope

This study analyzes Pakistan's Technical and Vocational Education and Training (TVET) sector, focusing on the legal and institutional framework at the federal level and in Khyber Pakhtunkhwa (KPK) over the past 15 years. It explores the root causes of youth unemployment, emphasizing inefficiencies in the skill development ecosystem and identifying gaps specific to the federal and provincial contexts. By evaluating the effectiveness of ongoing TVET initiatives and programs implemented during this period, the study highlights critical areas for improvement. Furthermore, it proposes actionable and sustainable policy solutions to enhance TVET service delivery, align it with labor market demands, and make it a more effective driver of economic development in both federal and KPK settings. This targeted approach aims to address localized challenges while aligning with national goals to ensure an efficient and equitable TVET system.

Research Methodology

- This study utilizes Primary and secondary data (qualitative & quantitative)
 - Department visit and interview
 - Performance Evaluation Reports
 - Research articles
- Situational and Institutional Analysis
- SWOT-EETH Analysis
- PESTEL Analysis
- Stakeholder Analysis
- GAP Analysis.
- Comparative Analysis

Analysis

SWOT Analysis of NAVTTC

Strengths

The National Vocational and Technical Training Commission (NAVTTC) serves as a cornerstone of Pakistan's Technical and Vocational Education and Training (TVET) sector, with several notable strengths that make it a pivotal institution in advancing workforce development across the country.

1. National Coordination Role

NAVTTC acts as the central authority responsible for ensuring uniformity and standardization in TVET policies, curricula, and qualifications across Pakistan. Its mandate includes developing frameworks and policies that align the TVET sector with national economic objectives. By facilitating collaboration between federal and provincial stakeholders, NAVTTC bridges the gap between various levels of government, ensuring cohesive and effective implementation of TVET initiatives. This coordination role is crucial for maintaining consistency and ensuring the adoption of best practices across provinces, particularly in a diverse and decentralized administrative environment.

2. Policy Expertise

NAVTTC has demonstrated significant expertise in policy development, exemplified by its leadership in formulating the **National Vocational Qualifications Framework (NVQF)**. This framework introduces a unified certification system that standardizes vocational qualifications, providing a structured pathway for learners. The NVQF not only ensures consistency across training programs but also enhances the credibility and recognition of Pakistan's TVET certifications both locally and internationally. Through this initiative, NAVTTC addresses the fragmentation in the sector and creates a robust foundation for skill recognition across the country.

3. International Partnerships

NAVTTTC has cultivated strong relationships with global donors and development organizations such as the European Union (EU), GIZ, British Council, and UNESCO. These partnerships provide essential technical expertise and financial resources to support the modernization of Pakistan's TVET sector. By working closely with international stakeholders, NAVTTTC gains access to global best practices, innovative technologies, and training methodologies. These collaborations also facilitate capacity building within the institution and ensure that TVET reforms align with international labor market standards, enhancing the competitiveness of Pakistani labor abroad.

4. Alignment with National Vision

NAVTTTC plays a critical role in supporting Pakistan's long-term economic goals, particularly those outlined in Vision 2025. The commission focuses on human capital development by emphasizing skill-based employability, bridging the gap between education and employment local as well as abroad. By aligning its objectives with national strategies, NAVTTTC contributes to fostering economic growth, reducing unemployment, and preparing the workforce for emerging industries such as information technology, renewable energy, and advanced manufacturing.

5. Capacity Building Initiatives

One of NAVTTTC's key strengths is its focus on improving the quality of vocational education through capacity-building initiatives. The commission invests in the professional development of TVET trainers, assessors, and administrators and principals, ensuring they have the necessary skills to deliver high-quality training and manage programs effectively. By organizing skills upgrading workshops, training sessions, and certification programs for trainers/assessors/educators, NAVTTTC enhances the overall quality and credibility of the TVET system. This focus on capacity building also addresses the critical shortage of skilled instructors and improves the learning experience for trainees.

6. Global Recognition Efforts

NAVTTTC has taken significant steps to align its certifications and training programs with international standards. By benchmarking its qualifications against global frameworks, NAVTTTC ensures that Pakistani TVET graduates are equipped with skills that meet international labor market demands. This alignment not only enhances the employability of Pakistani workers abroad but also strengthens Pakistan's reputation as a reliable source of skilled labor. The commission's efforts in this area contribute to increasing labor export opportunities, particularly in high-demand markets like the Gulf countries, while improving remittance inflows.

WEAKNESSES

Despite its critical role in the TVET ecosystem, the NAVTTC faces several weaknesses that hinder its effectiveness and impact.

1. Implementation Challenges

One of the significant hurdles for NAVTTC is its limited enforcement authority, especially in the post-18th Amendment governance framework, which decentralized education and implementation function of vocational training to provincial governments. This decentralization has led to inconsistencies in the implementation of national policies and frameworks. Provincial bodies often operate independently, creating gaps in coordination and standardization across regions. NAVTTC's inability to mandate compliance from provincial entities weakens its overall influence and diminishes the uniformity of TVET reforms.

2. Data Deficiencies

NAVTTC suffers from the lack of a comprehensive national database that tracks TVET graduates, labor market trends, and training outcomes. This deficiency severely hampers evidence-based decision-making and policy planning. Without accurate and updated data, it is challenging to assess the effectiveness of training programs, identify skills gaps in the labor market, or forecast future workforce demands. This gap also limits the ability to monitor employment rates of TVET graduates, making it harder to measure the long-term impact of TVET initiatives.

3. Funding Reliance

NAVTTC is heavily reliant on donor funding to sustain its programs and reforms. While international support from organizations like the EU, GIZ, and UNESCO has been instrumental, this overdependence on external funding raises concerns about sustainability. The lack of a diversified financing strategy or innovative mechanisms to generate domestic revenue leaves NAVTTC vulnerable to changes in donor priorities or funding availability, potentially disrupting long-term projects and reforms.

4. Bureaucratic Delays

Administrative inefficiencies and bureaucratic red tape significantly slow down NAVTTC's policy approval and implementation processes. These delays often result in missed opportunities for timely interventions and reduce the institution's responsiveness to emerging labor market needs. Such inefficiencies not only affect program execution but also undermine stakeholder confidence in NAVTTC's ability to deliver results.

5. Limited Private Sector Engagement

Despite its mandate to bridge the gap between the labor market and vocational training, NAVTTC has struggled to effectively involve the private sector in its activities. Industries and businesses remain underutilized in policy formulation, curriculum development, and program delivery.

This lack of collaboration results in training programs that are often misaligned with market demands, perpetuating the mismatch between the skills of TVET graduates and industry needs. The absence of strong public-private partnerships further limits opportunities for internships, apprenticeships, and job placements for trainees.

Opportunities

The NAVTTC has several opportunities to enhance its role in transforming Pakistan's TVET sector into a driver of economic growth and development.

1. Youth Demographic Dividend

Pakistan's large youth population presents a unique opportunity to create a highly skilled workforce capable of meeting both local and international labor market demands. With a significant portion around 65% of the population under the age of 30, NAVTTC has the potential to harness this demographic dividend by designing and implementing programs that equip young people with the skills needed for emerging industries. Targeting this group will not only address unemployment but also position Pakistan as a global supplier of skilled labor.

2. Economic Growth Projects

Initiatives like the China-Pakistan Economic Corridor (CPEC) and the rise of industrialization have significantly reshaped Pakistan's economic landscape, creating a growing demand for specialized skills in key sectors such as construction, logistics, renewable energy, and manufacturing. These developments present a strategic opportunity for NAVTTC to realign its training programs to meet the evolving needs of these industries and the international labor market. By integrating globally recognized standards and certifications into its curricula, NAVTTC can ensure that Pakistani workers are competitive in both domestic and international markets.

For example:

- **Construction:** Focused training in advanced construction techniques, project management, health and safety standards, and compliance with international construction codes to prepare workers for large-scale projects locally and abroad.
- **Logistics:** Courses in global supply chain management, warehousing, and transportation logistics to meet the needs of industries requiring skilled logistics personnel worldwide.
- **Renewable Energy:** Programs that emphasize solar panel installation, wind turbine maintenance, and energy efficiency solutions, catering to the increasing demand for green energy professionals globally.
- **Manufacturing:** Specialized training in automation, precision engineering, and industrial equipment operations aligned with international standards for skilled labor.

To meet the demand for skilled workers in the global market, NAVTTC can establish **International Labor Skills Programs**, focusing on:

1. **Global Certifications:** Collaborating with internationally recognized accreditation bodies to ensure training programs meet the skills requirements of labor-receiving countries like the Gulf nations, Europe, and Southeast Asia.
2. **Language and Cultural Training:** Incorporating language skills (e.g., English, Arabic, Japanese, Korean, German) and cross-cultural communication training to better prepare workers for overseas work environments.
3. **Targeted Apprenticeships:** Developing partnerships with multinational corporations and labor-receiving countries to offer apprenticeships and internships that lead to direct placement opportunities abroad.
4. **Occupation-Specific Training:** Delivering training in high-demand global trades such as electricians, plumbers, welders, heavy machinery operators, and healthcare support staff.
5. **Workforce Mobility Agreements:** Negotiating bilateral agreements with labor-receiving countries to secure quotas and preferential hiring for Pakistani workers.

By aligning its training programs with economic growth projects like CPEC and global labor market requirements, NAVTTC can not only enhance the employability of TVET graduates but also strengthen Pakistan's position as a leading provider of skilled labor internationally. This approach will attract increased investment in the TVET sector, boost remittances, and ensure sustainable economic development for the country.

3. Digital Transformation

The rapid adoption of e-learning platforms, digital tools, and simulator-based training offers NAVTTC a transformative opportunity to expand access to skills development, particularly in underserved and remote areas. By leveraging these advancements, NAVTTC can introduce innovative learning methodologies, including virtual classrooms, online certification programs, and blended learning approaches, alongside state-of-the-art simulators. These approaches can overcome geographical barriers and provide learners with practical, hands-on experience in a controlled and cost-effective environment.

Simulator-based training is particularly valuable in high-demand technical fields such as welding, heavy machinery operation, electrical work, and the automobile sector. Using simulators, trainees can practice real-world scenarios with precision and safety, reducing material waste and minimizing risks associated with on-the-job training. For instance:

- **Welding Simulators:** Allow trainees to perfect welding techniques without consuming actual materials, enhancing skill accuracy and efficiency. (soldamatic)

- **Heavy Machinery Simulators:** Provide realistic training experiences for operators, including excavators, cranes, and forklifts, preparing them for challenging work environments while ensuring safety. (Simlog)
- **Electrical Field Simulators:** Enable learners to understand circuit design, fault detection, and repair in a risk-free setting.
- **Automobile Sector Simulators:** Train individuals in vehicle diagnostics, repair, and maintenance using interactive tools that replicate real-life scenarios.

These innovations not only address traditional training challenges but also promote inclusivity by enabling women and disadvantaged groups to access TVET programs. Simulator-based training, combined with digital learning, equips participants with the practical and technical expertise required to thrive in modern industries, ensuring they are job-ready and competitive in both local and international markets. By prioritizing digital transformation and simulator technology, NAVTTC can enhance the effectiveness, reach, and inclusivity of TVET programs, building a skilled workforce aligned with the demands of a technology-driven economy.

4. International Collaboration

NAVTTC has the opportunity to strengthen its ties with global TVET bodies and institutions to gain technical assistance, share knowledge, and adopt international best practices. Collaborations with organizations such as UNESCO, ILO, and regional TVET bodies like Colombo Plan Staff College (CPSC) can enhance the quality and relevance of Pakistan's vocational training programs. This opportunity also extends to adopting internationally recognized certification standards, which would improve the global employability of Pakistani graduates.

5. Skills Recognition

A significant portion of Pakistan's workforce acquires skills informally through systems like the Ustad-Shagird (Master-Apprentice) model. NAVTTC can formalize these skills through Recognition of Prior Learning (RPL) frameworks, providing certification and validation for informal learning. This initiative would improve employment prospects for workers, enhance productivity, and integrate these individuals into the formal economy, addressing the gaps in skilled labor supply.

6. Public Awareness Campaigns

Promoting TVET as a viable and respectable career pathway can help change public perceptions and reduce the stigma associated with technical education. By launching awareness campaigns that highlight success stories and the economic potential of vocational training, NAVTTC can attract more youth to its programs. This would also encourage parents and communities to view technical education as a valuable alternative to traditional academic routes, ultimately increasing enrollment and diversifying the talent pool.

THREATS

The NAVTTC faces several external challenges that could impede its efforts to modernize and enhance Pakistan's TVET sector. These threats must be carefully addressed to ensure the effectiveness and sustainability of its initiatives.

1. Provincial Resistance

Following the 18th Amendment, which decentralized various sectors, including education and vocational training, coordination challenges between federal and provincial entities have become evident. This decentralization has led to overlaps, gaps, and occasional disputes over autonomy and roles, complicating the seamless implementation of national TVET policies and programs.

Provincial resistance to federal oversight often undermines NAVTTC's ability to ensure uniformity in standards, curricula, and certification frameworks. This lack of alignment results in fragmented governance, inconsistencies in training quality, and reduced overall impact of reforms. Divergent provincial priorities further exacerbate these challenges, making it difficult to establish a cohesive and effective TVET system across the country.

2. Economic Instability

Pakistan's recurring economic challenges, including inflation, budget deficits, and financial crises, pose a significant threat to the TVET sector. Budget cuts during periods of economic instability could result in reduced funding for NAVTTC's initiatives, compromising the quality and reach of training programs. Limited financial resources may also hinder the implementation of new projects, capacity-building efforts, and the adoption of innovative technologies, further stalling the sector's growth.

3. Global Competition

In the international labor market, Pakistani workers face stiff competition from countries with well-established TVET systems such as the Philippines, India, and Vietnam. These nations often produce highly skilled workers with internationally recognized certifications, making them more attractive to employers abroad. If NAVTTC fails to align its programs with global standards, it risks losing labor market opportunities for Pakistani workers, thereby reducing remittances and limiting employment prospects for TVET graduates.

4. Cultural Perception

A long-standing societal bias against vocational education remains a significant threat to NAVTTC's mission. Vocational training is often perceived as inferior to traditional academic education, discouraging many young people and their families from pursuing TVET programs. This cultural stigma limits enrollment in vocational training institutes and hampers NAVTTC's ability to build a diverse and robust skilled workforce. Overcoming this perception requires sustained awareness campaigns and efforts to showcase the value of technical education.

5. Fragmented Systems

Weak coordination between NAVTTC and provincial TEVTAs exacerbates the challenges of managing a cohesive TVET system. The lack of synchronization can result in the duplication of efforts, wasted resources, and inconsistent quality standards across provinces. Fragmentation undermines the effectiveness of national policies and makes it harder to address regional skill needs or align programs with local industries. This disjointed approach also reduces the overall efficiency of the sector and limits its potential to achieve large-scale improvements.

EETH Analysis of NAVTTC

Enhancing the Strengths: NAVTTC possesses several strengths that establish its role as a pivotal entity in Pakistan's TVET sector. To maximize the impact of these strengths, targeted strategies can further enhance their effectiveness and utility:

1. National Coordination Role

- **Enhancement Approach:**

Strengthen collaboration mechanisms between federal and provincial governments by introducing regular convene the meeting of the TVET National Coordination Committee meeting, inter-provincial dialogues, joint working groups, and performance monitoring systems.

Implement a centralized digital platform for the coordination of TVET policies, curricula, qualification standards and TVET training programs to minimize redundancies and inconsistencies.

- **Impact:**

Improved cohesion and uniformity across the country's TVET framework, ensuring smoother policy implementation and increased efficiency in addressing regional needs.

2. Policy Expertise

- **Enhancement Approach:**

Expand the development and implementation of the National Vocational Qualifications Framework (NVQF) to incorporate emerging industries such as artificial intelligence, renewable energy, and e-commerce.

Increase stakeholder participation, including relevant industry experts, academia, and provincial TEVTAs, during the policy formulation process to ensure broader acceptance and relevance and implementation policies accordingly.

- **Impact:**

Policies and standards that remain agile and aligned with evolving market and technological demands, improving the employability of graduates.

3. International Partnerships

- **Enhancement Approach:**

Deepen collaborations with international donors and organizations by initiating joint pilot projects, knowledge-sharing forums, and long-term funding agreements. Focus on leveraging international expertise to design training programs and certifications that meet global labor market demands.

- **Impact:**

Enhanced access to financial resources and best practices, allowing NAVTTC to develop innovative, globally recognized programs and certifications.

4. Alignment with National Vision

- **Enhancement Approach:**

Actively integrate TVET programs into key national projects such as CPEC, Vision 2025, and other industrialization initiatives by developing tailored skill training plans.

Create specialized task forces to identify future skill demands based on Pakistan's economic priorities.

- **Impact:**

Strengthened alignment with national development goals, leading to higher recognition of NAVTTC's role in economic transformation.

5. Capacity Building Initiatives

- **Enhancement Approach:**

Investing in the Training of Trainers (ToT) programs and upskilling national assessors is essential to enhancing the quality and effectiveness of Pakistan's TVET sector. Equipping trainers, assessors, and administrators with advanced pedagogical and technological skills will ensure they are prepared to meet the dynamic demands of local industries and international markets.

Collaborations with globally recognized training institutions to offer certification programs for TVET trainers and assessors can elevate their professional expertise. These partnerships would facilitate the adoption of cutting-edge teaching methodologies, innovative assessment practices, and international best practices, aligning Pakistan's TVET standards with global benchmarks.

Moreover, strengthening and standardizing the licensing system for assessors nationwide is crucial. Making licensing mandatory for all assessors will ensure consistency, accountability, and quality in the assessment process. This initiative will also build trust among employers, both domestically and internationally, in the skills and certifications awarded to TVET graduates.

- **Impact:**

Improved teaching quality and system management capabilities, leading to better learning outcomes and industry-ready graduates.

6. Global Recognition Efforts

- **Enhancement Approach:**

Fast-track the alignment of TVET certifications with international standards, such as those set by **WorldSkills International** and **ISO certifications**.

Establish dedicated task forces to negotiate mutual recognition agreements (MRAs) with labor-receiving countries, ensuring easier acceptance of Pakistani workers abroad.

- **Impact:**

By implementing these measures, the TVET sector can establish a sustainable ecosystem of highly competent trainers and assessors, improve training and assessment quality, and enhance the employability and credibility of Pakistan's workforce in both local and global markets.

ELIMINATING WEAKNESSES

NAVTTTC's weaknesses, if addressed strategically, can transform into opportunities for growth and improvement. Below are detailed approaches to overcome these challenges:

1. Implementation Challenges

- **Cause:** Limited enforcement authority due to decentralized governance after the 18th Amendment.
- **Elimination Approach:**
 - Establish clear federal-provincial collaboration frameworks that outline roles, responsibilities, and decision-making authority.
 - Advocate for amendments in TVET-related legislation to grant NAVTTTC stronger oversight powers for policy implementation.
 - Form joint task forces with provincial TEVTAs to ensure cohesive and uniform implementation of national TVET policies.
 - Developing comprehensive rules and regulations under existing laws is essential to ensure the effective enforcement of policies and their successful implementation. Clearly defined regulatory frameworks provide guidance, standardize procedures, and eliminate ambiguities, enabling consistent application across all levels. These rules should be aligned with national priorities and tailored to address local challenges, ensuring that policies translate into actionable and measurable outcomes.
 - Additionally, the enforcement mechanisms must be robust, with clear accountability structures and regular monitoring to assess compliance and effectiveness.

- By establishing well-framed rules and regulations, policymakers can bridge the gap between legislative intent and practical implementation, fostering efficiency, transparency, and long-term sustainability in policy execution.
- **Outcome:**
Improved policy enforcement and streamlined governance, reducing inconsistencies across provinces.

2. Data Deficiencies

- **Cause:** The lack of a comprehensive national database for TVET graduates, labor market trends, and training outcomes limits effective planning. The underutilization of the NAVQF registry system further restricts tracking graduates, matching skills with industry needs, and evaluating training impact. This data gap hinders informed decision-making and prevents alignment of TVET programs with market demands.
- **Elimination Approach:**
 - Develop a centralized National TVET Data Management System that integrates the NAVQF registry to track enrollment, certifications, employment outcomes, and labor market needs, ensuring a comprehensive view of the TVET sector.
 - Collaborate with provincial TEVTAs, industry associations, and labor market experts to facilitate comprehensive data collection, analysis, and ensure that the system remains aligned with regional and national skills requirements.
 - Leverage AI and analytics tools to forecast skill demands, assess program effectiveness, and identify areas for improvement, helping to optimize training efforts and better match graduates with market needs.
- **Outcome:**
Data-driven decision-making that enhances planning, resource allocation, and alignment with market needs.

3. Funding Reliance

- **Cause:** Overdependence on donor funding, with limited exploration of sustainable financing mechanisms.
- **Elimination Approach:**
 - Develop alternative funding streams through partnerships with private sector stakeholders and industries benefiting from TVET graduates.
 - Introduce income-generating initiatives such as paid training programs, consulting services, or skill certifications for corporate clients.

- Advocate for increased government budget allocation to TVET as a long-term investment in economic growth.
- **Outcome:**
Financial independence and sustainability, reducing vulnerability to donor withdrawal.

4. Bureaucratic Delays

- **Cause:** Inefficiencies in administrative processes lead to delays in policy approvals and implementation. Additionally, the appointment of officials without technical expertise in TVET bodies further exacerbates these issues, as they may lack the necessary understanding to make informed decisions, streamline operations, or address sector-specific challenges effectively. This results in slow progress and missed opportunities for reform within the TVET system.
- **Elimination Approach:**
 - Simplify approval procedures by introducing streamlined workflows and leveraging technology for document processing and communication, ensuring faster decision-making and implementation.
 - Provide training for administrative staff in project management, efficiency improvement techniques, and sector-specific knowledge to improve overall operational effectiveness.
 - Set clear performance benchmarks for policy development and implementation timelines to ensure timely and impactful execution.
 - Address the issue of appointing officials without technical expertise in TVET bodies by establishing clear qualification requirements and ensuring that decision-makers possess the necessary knowledge and skills to oversee the sector effectively.
- **Outcome:**
Streamlined policy approvals and enhanced project execution will lead to the faster realization of TVET objectives. This will result in more efficient implementation of reforms, ensuring that the sector adapts swiftly to industry needs and contributes more effectively to economic growth and workforce development.

5. Limited Private Sector Engagement

- **Cause:** Insufficient involvement of industries and businesses in TVET policy formulation and program delivery.
- **Elimination Approach:**
 - Establish dedicated **Industry Liaison Committees** to ensure active private sector participation in curriculum design, internships, and apprenticeships.

- Provide tax incentives or subsidies to businesses that collaborate with NAVTTC on training programs.
- Host regular industry-focused forums to align TVET initiatives with emerging labor market needs.
- **Outcome:**
Enhanced relevance and market alignment of TVET programs, improving employability and industry satisfaction.

Taking Advantage of Opportunities

NAVTTC's opportunities present a valuable chance to enhance the effectiveness of Pakistan's TVET sector and contribute to national economic growth. Strategic actions to leverage these opportunities are detailed below:

1. Youth Demographic Dividend

- **Opportunity:**
Pakistan's large youth population provides an abundant labor pool that, if trained effectively, can fulfill both local and global labor demands.
- **Action Plan:**
 - Design targeted training programs in high-demand sectors such as IT, renewable energy, construction, and healthcare.
 - Partner with provincial TEVTAs to increase outreach in rural and underserved areas where youth participation in TVET programs is low.
 - Develop apprenticeship and internship programs to provide real-world experience and improve workforce readiness.
- **Impact:**
A highly skilled workforce that contributes to economic growth, reduces unemployment, and strengthens Pakistan's competitive edge in global labor markets.

2. Economic Growth Projects

- **Opportunity:**
Mega initiatives like CPEC and rapid industrialization create new demand for skilled workers in infrastructure, logistics, and manufacturing.
- **Action Plan:**
 - Collaborate with industries involved in CPEC to identify specific skills required and customize TVET curricula accordingly.
 - Establish specialized training centers in regions directly impacted by economic growth projects to meet local labor needs.
 - Develop certification programs aligned with international construction, transportation, and energy standards to improve employability.

- **Impact:**
Alignment of training with industrial growth ensures that projects like CPEC benefit from a skilled local workforce, reducing dependency on foreign labor.

3. Digital Transformation

- **Opportunity:**
E-learning platforms and digital tools can expand access to skills training, especially in remote and underserved regions.
- **Action Plan:**
 - Launch an **online TVET portal** offering courses in digital skills, coding, graphic design, and online freelancing.
 - Equip TVET institutions with modern IT infrastructure and train instructors in digital pedagogy.
 - Partner with technology companies to provide hardware, software, and certification programs for emerging tech skills.
 - Simulator-based training is particularly valuable in high-demand technical fields such as welding, heavy machinery operation, electrical work, and the automobile sector. Using simulators, trainees can practice real-world scenarios with precision and safety, reducing material waste and minimizing risks associated with on-the-job training.
- **Impact:**
Widespread accessibility to high-quality training, fostering digital literacy and creating employment opportunities in the global digital economy.

4. International Collaboration

- **Opportunity:**
Stronger ties with global TVET bodies provide technical assistance, funding, and access to best practices.
- **Action Plan:**
 - Strengthen partnerships with organizations like **ILO**, **EU**, **GIZ**, and **UNESCO** for technical guidance and resource sharing.
 - Engage in international knowledge-sharing forums to adopt innovative training techniques and standards.
 - Collaborate with labor-receiving countries to establish mutual recognition agreements (MRAs) for TVET certifications.
- **Impact:**
Improved quality of training and certifications, enabling Pakistani workers to compete globally and increasing remittances.

5. Skills Recognition

- **Opportunity:**

Formalizing informal skills, such as those acquired through the Ustad-Shagird system, can enhance employability and workforce productivity.

- **Action Plan:**

- Implement a national Recognition of Prior Learning (RPL) framework to certify informal skills through competency-based assessments, enabling workers to gain formal recognition for their expertise.
- Launch awareness campaigns to highlight the benefits of skill certification for informal workers, encouraging them to pursue formal recognition and access better job opportunities.
- Facilitate the integration of certified informal workers into formal sectors, improving their income potential, job stability, and overall career prospects.
- Engage industries such as construction, the service sector, and other key industries to recognize and hire certified informal workers through the RPL system, ensuring that employers value their skills and contribute to the growth of a skilled workforce.

- **Impact:**

Bridging the gap between informal and formal economies, increasing workforce efficiency, and providing better job opportunities for skilled workers.

6. Public Awareness Campaigns

- **Opportunity:**

Promoting TVET as a viable career path can attract more youth and reduce societal stigma surrounding technical education.

- **Action Plan:**

- Conduct nationwide TV and social media campaigns highlighting success stories of TVET graduates and its economic benefits.
- Partner with schools to introduce TVET career counseling programs for students and parents.
- Celebrate national TVET achievements through skills competitions and publicized events to enhance its image.

- **Impact:**

Increased enrollment in TVET programs, a cultural shift toward recognizing vocational education, and better utilization of training resources.

Hedging Against Threats

To mitigate the threats NAVTTC faces, proactive strategies and robust policy frameworks are essential. Below is a detailed plan to address these challenges and safeguard the progress of Pakistan's TVET sector:

1. Provincial Resistance

- **Threat:** Tensions between federal and provincial bodies over autonomy and roles can undermine policy implementation.
- **Hedging Strategy:**
 - Establish a **Federal-Provincial Coordination Committee** to regularly discuss and resolve conflicts, ensuring alignment on policy objectives.
 - Promote cooperative agreements that clearly define the responsibilities of NAVTTC and provincial TEVTAs to avoid overlaps and disputes.
 - Introduce incentives for provinces to adopt NAVTTC-recommended policies and standards, such as funding allocations linked to compliance.
- **Impact:** Enhanced collaboration between federal and provincial entities, minimizing resistance and fostering unified TVET development.

2. Economic Instability

- **Threat:** Budget cuts or economic slowdowns could limit funding for TVET initiatives.
- **Hedging Strategy:**
 - Diversify funding sources by engaging private sector stakeholders, introducing Public-Private Partnerships (PPPs), and developing self-sustaining programs.
 - Advocate for TVET as a priority investment in national development, ensuring stable government budget allocation even during economic crises.
 - Develop cost-effective training models, such as hybrid learning and community-based training centers, to reduce dependency on large-scale funding.
- **Impact:** Reduced reliance on fluctuating economic conditions, ensuring continuity of TVET programs.

3. Global Competition

- **Threat:** Other countries with established TVET systems may attract international labor market opportunities, reducing demand for Pakistani workers.

- **Hedging Strategy:**

- Align Pakistan's TVET certifications with international standards to enhance the credibility of qualifications and ensure that the country's workforce remains competitive in the global labor market.
- Establish partnerships with labor-receiving countries to negotiate favorable terms for Pakistani workers, such as securing quotas and ensuring smoother labor mobility for skilled workers.
- Focus on developing niche skills and sectors, such as halal food processing and Islamic finance, where Pakistan has a comparative advantage, positioning the country as a specialized provider of skilled labor in these emerging industries.
- Strengthen the role of the Bureau of Emigration and Overseas Employment Promoters (OEPs) in facilitating and promoting the employment of Pakistani skilled workers abroad. By actively collaborating with labor-receiving countries and supporting OEPs, the Bureau of Emigration can help ensure better labor mobility and create more opportunities for Pakistan's TVET graduates in the international job market.

- **Impact:**

Improved global competitiveness of Pakistani workers, ensuring consistent demand in international labor markets.

4. Cultural Perception

- **Threat:** Persistent societal bias against vocational training as an inferior education path can limit youth participation.

- **Hedging Strategy:**

- Launch large-scale awareness campaigns highlighting the economic benefits of TVET and its role in creating employment opportunities.
- Partner with schools and communities to integrate TVET career guidance into secondary education curricula.
- Showcase successful TVET graduates as role models to inspire youth and shift cultural perceptions.

- **Impact:**

Increased acceptance of vocational training as a respectable career option, leading to higher enrollment rates.

5. Fragmented Systems

- **Threat:** Weak coordination with provincial TEVTAs may lead to duplication of efforts and inconsistent quality standards.

- **Hedging Strategy:**
 - Develop a National TVET Coordination Framework to standardize policies, curricula, training program designs, and certifications across provinces, ensuring alignment and consistency in vocational education and training.
 - Create a unified digital management system to track the implementation and outcomes of TVET programs, providing transparency, efficiency, and real-time data on program progress, challenges, and achievements.
 - Encourage joint federal-provincial training and capacity-building programs to harmonize skill development efforts, fostering collaboration between regional and national authorities and ensuring that the TVET sector responds effectively to both local and national labor market needs
- **.Impact:**

A cohesive and well-coordinated TVET system, minimizing inefficiencies and ensuring high-quality training across the country.

Pestel Analysis of Tvet Sector of Pakistan

POLITICAL

- **Government Policies and Support:** Pakistan's TVET sector has been influenced by shifts in political leadership and changing government priorities. While comprehensive policies, laws, and regulations exist at both the federal and provincial levels, their inconsistent implementation and lack of continuity often undermine their effectiveness. The federal government, through bodies like NAVTTC, has formulated frameworks such as the National Vocational Qualifications Framework (NVQF) and apprenticeship laws, while provincial authorities have developed regional strategies. However, these laws are not always fully enforced or aligned with the dynamic needs of the labor market, leading to inefficiencies. Additionally, frequent political transitions and changes in leadership can result in policy instability, further hindering the sector's growth. Without consistent and cohesive implementation, the TVET sector struggles to address skill gaps, improve workforce quality, and align with evolving industrial demands.
- **Decentralization after the 18th Amendment:** The 18th Amendment to Pakistan's Constitution led to the decentralization of several sectors, including education and vocational training. While this shift increased provincial autonomy, it also created significant challenges in terms of consistent implementation and coordination between federal and provincial entities.

- This has resulted in fragmented governance and uneven policy execution. Initially, the National Vocational and Technical Training Commission (NAVTTTC) was established in 2005 and placed under the Prime Minister's Secretariat to avoid bureaucratic delays. However, following the 18th Amendment, NAVTTTC was placed under the Ministry of Federal Education and Professional Training for administrative control. This change has caused delays in decision-making processes, as the commission's functions have become more entangled in bureaucratic procedures, affecting the speed and efficiency of policy execution and reform in the TVET sector.
- **Political Instability:** Political instability and changing priorities in Pakistan have had a significant impact on the long-term effectiveness of TVET reforms, particularly after the establishment of the National Vocational and Technical Training Commission (NAVTTTC) in 2005. While NAVTTTC was created with the aim of streamlining and improving vocational education and training across the country, its efficiency has been undermined by frequent shifts in political leadership and government priorities. Different political parties have had varying visions for the sector, leading to inconsistent policy implementation, fluctuating funding levels, and changing focal points of intervention.

For example, political transitions have led to shifts in the ministry under which NAVTTTC operates, from the Prime Minister's Secretariat to the Ministry of Federal Education and Professional Training, as mandated by the 18th Amendment. These changes in administrative oversight have disrupted continuity in decision-making processes, slowing down the implementation of key initiatives. Additionally, political changes have often led to the reallocation or reduction of funds for TVET programs, making it difficult for NAVTTTC to maintain momentum in its reforms or expand its programs.

Political instability also impacts the alignment of federal and provincial TVET policies, leading to a fragmented system. Since the implementation of vocational training was devolved to the provinces after the 18th Amendment, the lack of uniformity between federal and provincial TVET policies has resulted in disparities in the quality and reach of TVET programs. NAVTTTC's ability to coordinate these efforts has been hampered by provincial resistance to federal oversight, further exacerbating the challenges in implementing a cohesive national strategy for skill development.

In conclusion, political instability and frequent changes in leadership have significantly hindered the efficiency and continuity of NAVTTC's work. These factors contribute to inconsistent policy execution, inadequate funding, and a lack of focus on long-term strategies, limiting the potential of the TVET sector to meet the demands of Pakistan's evolving labor market.

ECONOMIC FACTORS

- **Skilled Labor Demand:** Pakistan's growing domestic industries, including construction, information technology (IT), manufacturing, and energy, have created an escalating demand for skilled labor. The rapid expansion of sectors like construction, driven by large-scale projects such as those under the China-Pakistan Economic Corridor (CPEC), has highlighted the need for workers trained in specific trades, including welding, carpentry, electrical work, and heavy machinery operation. Similarly, the growing IT sector requires technicians, software developers, network engineers, and cybersecurity experts, further increasing the demand for specialized TVET programs.

At the same time, Pakistan's international labor market also presents significant opportunities and challenges. Many Gulf Cooperation Council (GCC) countries, such as Saudi Arabia, the UAE, and Qatar, have large-scale infrastructure projects that demand skilled workers, especially in fields like construction, welding, electrical work, and heavy machinery operation. These countries, along with other labor-receiving countries globally, often seek qualified workers from Pakistan, making the development of a skilled labor force crucial not only for domestic economic growth but also for fulfilling international labor requirements. However, the lack of a sufficiently trained workforce in these sectors has resulted in skill shortages both domestically and in the international labor market. This shortage of skilled workers in high-demand sectors has led to missed opportunities in labor export, reducing the potential for remittances that are vital for Pakistan's economy.

The existing TVET system struggles to meet the demands of both domestic industries and the international labor market. There is a need for targeted training programs that align with the specific skill requirements of labor-receiving countries, as well as industry-specific certifications that are recognized internationally. Without these improvements, Pakistan may continue to face challenges in both providing the domestic workforce with employable skills and meeting the demand for skilled labor abroad.

As a result, policymakers must focus on enhancing TVET offerings, ensuring that the system not only addresses local industry requirements but also prepares workers for international job opportunities. Improving the quality of vocational training and certification, expanding international partnerships, and aligning training programs with global standards will be essential for meeting both domestic and international labor demands.

- **Unemployment Rates**

High unemployment rates, especially among the youth, pose a significant challenge to Pakistan's economy. The youth unemployment rate is a particularly alarming issue, with many young people lacking the skills necessary to enter the labor market. Pakistan's population is growing rapidly, with a significant portion of the population in the working-age group, yet the formal education system struggles to equip youth with job-relevant skills. In many cases, graduates from general education pathways do not possess the technical skills required by industries, leading to a mismatch between the education system and the labor market. TVET is seen as a key solution to this challenge, as it offers practical, hands-on skills that directly enhance employability. By equipping individuals with industry-specific skills, TVET programs can play a crucial role in reducing unemployment and creating a workforce that meets the needs of the economy.

- **Funding Limitations**

One of the significant barriers to the effective functioning of the TVET sector in Pakistan is limited government funding. Public sector investment in education, especially vocational training, is insufficient to meet the growing demand for skilled workers. Despite the recognition of TVET's importance in national economic development, budget allocations for TVET programs remain inadequate. This constraint limits the ability to improve infrastructure, upgrade training facilities, invest in modern equipment, and expand outreach to underserved regions.

Furthermore, Pakistan's heavy reliance on international donor funding—such as from organizations like the European Union (EU), British Council, GIZ, and USAID—highlights the country's economic constraints in sustaining and expanding TVET initiatives. While donor funding has played a crucial role in driving some TVET reforms, it often comes with specific conditions and is subject to the availability of resources from international partners. Additionally, dependence on external funding makes long-term planning and sustainability difficult, as donor-driven projects can be limited in scope and duration.

The lack of sufficient local funding not only hampers the development of new TVET infrastructure but also impacts the quality of education provided. The inability to modernize training programs and keep pace with technological advancements can leave graduates ill-prepared to meet the needs of a rapidly evolving job market. In the long term, this could undermine the effectiveness of TVET in addressing skill shortages and improving the employability of youth in Pakistan.

SOCIAL FACTORS

- **Cultural Perceptions**

In Pakistan, societal attitudes often favor traditional academic education over vocational training. This preference is deeply ingrained, with academic degrees perceived as status symbols and pathways to upward mobility, while vocational training is sometimes viewed as less prestigious. Consequently, many students and their families opt for general education, even though vocational skills offer better job opportunities in the labor market. This cultural bias limits TVET enrollment and hinders its growth, as students from lower-income and rural areas—who would benefit the most from skill-based training—often choose traditional educational paths due to societal pressure. Changing this perception requires widespread awareness campaigns highlighting the economic benefits and prestige of vocational skills, as well as success stories of TVET graduates excelling in various industries.

- **Gender Disparities**

Gender disparities significantly impact female participation in TVET programs. Cultural and societal barriers often restrict women's access to vocational training, particularly in fields traditionally dominated by men, such as construction, welding, and engineering. In many parts of the country, especially in conservative areas, women face considerable challenges accessing vocational training due to traditional gender roles, lack of safe learning environments, and the absence of women-centric training programs. Additionally, there are limited opportunities for women to engage in technical education in fields such as IT, mechanics, and heavy machinery operation, which are highly demanded both locally and internationally. This lack of inclusivity in TVET not only results in lower female participation but also restricts women's access to economic opportunities and financial independence. Addressing this issue requires the establishment of dedicated women's training centers, awareness programs about the importance of TVET for women, and the creation of supportive environments that challenge gender stereotypes and encourage women to participate in diverse vocational fields.

- **Youth Population**

Pakistan has one of the youngest populations globally, with a significant portion of its population falling within the working-age group. This youth demographic represents a tremendous opportunity for the TVET sector to address issues of unemployment and economic growth. However, despite this potential, the TVET sector has not yet fully capitalized on the opportunity to provide skills training to young people. High levels of youth unemployment—especially among graduates of traditional educational programs—underline the importance of vocational education. Many young people in Pakistan face difficulties securing employment due to a mismatch between their academic qualifications and the demands of the job market. TVET can bridge this gap by offering practical, hands-on skills training that directly aligns with industry needs. Furthermore, by fostering a skilled workforce, TVET can help stimulate economic growth, reduce poverty, and lower the unemployment rate among young people, who are currently the most vulnerable group in the labor market.

Statistical Insights

- **Youth Unemployment Rate:** As of 2023, the youth unemployment rate in Pakistan was approximately 9.65%, indicating a significant proportion of young individuals aged 15-24 are without employment. (Statista)
- **TVET Enrollment by Gender:** Data from 2004 to 2018 shows a disparity in TVET enrollment between genders. In 2018, approximately 234,000 males and 90,000 females were enrolled in TVET programs, highlighting a gender gap in vocational education. (UN-Women Asia-Pacific)
- **Female Enrollment in Specific Trades:** An analysis of the National Skilling Information System (NSIS) database revealed that female enrollment was concentrated in five trades: beautician, domestic tailoring, MS Office, professional cook, and fashion designing. Over 80% of female students were enrolled in these areas, indicating limited diversification in female participation.

TECHNOLOGICAL FACTORS

- **Technological Advancements:** The integration of technology into TVET programs is becoming increasingly important as Pakistan embraces digital transformation. Digital platforms, virtual learning environments, and e-learning modules are being introduced, often with the support of international donors such as the EU, GIZ, and USAID. These advancements have made training more accessible, particularly in remote and underserved areas where physical infrastructure for vocational training is limited.

For example:

Digital Platforms and E-Learning: Online platforms enable blended learning approaches, combining virtual and hands-on training. Programs delivered via Learning Management Systems (LMS) have enhanced flexibility and expanded reach.

Simulators and Virtual Labs: In high-demand trades like welding, heavy machinery operation, and electrical engineering, the use of simulators allows trainees to gain practical experience in a safe, controlled environment.

Mobile Learning (m-Learning): The widespread use of mobile devices in Pakistan opens opportunities for TVET institutions to deliver training through mobile apps, expanding access to technical education for those in rural areas.

Skill Gaps Despite the potential for technological integration, many TVET institutions in Pakistan are hindered by outdated infrastructure and limited access to modern equipment. The following challenges persist:

Outdated Equipment: A significant number of TVET centers still rely on traditional tools and equipment, which do not align with the advanced technologies used in industries today.

Competency-Based Training (CBT): The adoption of CBT curricula, which focuses on skills demanded by employers, is limited. Without updated and industry-relevant curricula, trainees often graduate with outdated skills, creating a mismatch between training outcomes and market needs.

Digital Divide: Rural and remote areas face connectivity issues, preventing equitable access to e-learning and other digital solutions. Institutions in these regions often lack the infrastructure needed to deliver technologically advanced programs.

Innovation in TVET: The growing emphasis on IT and digital skills presents a significant opportunity to modernize TVET programs in Pakistan. Emerging fields such as Robotics, Artificial Intelligence (AI), and Industry 4.0 are creating new avenues for innovation in vocational training:

IT and Digital Skills Training: Pakistan's growing IT sector demands a skilled workforce in areas like software development, cybersecurity, networking, and cloud computing. However, despite producing over **70,000 IT graduates annually**, only around **5,000 secure employments**, underscoring a significant gap between academic training and industry needs. Many graduates lack practical, industry-relevant skills due to outdated curricula and limited access to specialized short-term courses in fields such as artificial intelligence (AI), data analytics, and blockchain.

To address this, TVET programs must introduce concise, practical courses aligned with market demands. Partnerships with local and international IT firms can ensure curriculum relevance and provide hands-on training. Initiatives like intensive skill bootcamps, global certification opportunities, and mentoring programs can prepare graduates for both domestic roles and international freelancing opportunities. By bridging this skills gap, Pakistan can better position its IT graduates to meet global market demands, driving employment growth and boosting the country's economy.

Robotics and AI: Robotics and Artificial Intelligence (AI) are revolutionizing industries worldwide, making advanced technical skills critical for workforce competitiveness. In Pakistan, the incorporation of robotics, AI, and machine learning into TVET programs can address the growing demand for automation expertise in sectors like manufacturing, healthcare, and logistics. By integrating these cutting-edge subjects into vocational training, Pakistan's workforce can be equipped with the skills needed to excel in the global job market.

Targeted programs focusing on practical applications, such as robotics assembly, AI-driven process optimization, and machine learning algorithms, can position Pakistani workers as valuable assets in high-demand industries. Collaboration with tech firms and international educational partners can provide access to modern equipment, expert trainers, and industry-recognized certifications. These advancements will not only enhance local industry competitiveness but also open pathways for skilled labor export to automation-driven markets globally.

Industry 4.0 Integration: The adoption of smart manufacturing technologies, including IoT (Internet of Things) and data analytics, requires skilled workers. Updating TVET curricula to include these technologies will ensure that trainees are prepared for the future of work.

Green Skills: Renewable energy and sustainable practices are emerging sectors that require specialized training. Programs focusing on solar energy installation, wind turbine maintenance, and energy-efficient construction can align Pakistan with global trends in sustainable development.

ENVIRONMENTAL FACTORS

- **Sustainability Focus** The global emphasis on sustainability and environmental preservation has created a demand for green skills, including training in renewable energy, waste management, and sustainable agriculture. As part of this trend, there is growing interest in incorporating green technologies into TVET curricula.

For example, skills in solar panel installation, wind turbine maintenance, and energy efficiency auditing are increasingly relevant in both domestic and international markets. Pakistan's renewable energy sector, driven by global climate goals and domestic energy shortages, offers significant opportunities for skilled workers in this domain.

- **Infrastructure Challenges:** Energy shortages and inadequate facilities, particularly in rural areas, are significant barriers to the effective development and delivery of TVET programs. Frequent power outages and limited access to modern training equipment hinder the practical learning experiences required in many vocational trades. Additionally, rural TVET centers often face difficulties in attracting qualified instructors and maintaining up-to-date infrastructure, leading to a disparity in training quality between urban and rural regions.
- **Disaster Impact:** Natural disasters, such as floods, earthquakes, and landslides, pose recurring challenges to Pakistan's TVET infrastructure. Regions like rural Khyber Pakhtunkhwa (KP) are particularly vulnerable, with floods frequently damaging educational facilities and disrupting training programs. The 2022 floods, for instance, devastated large parts of the country, displacing millions and destroying schools and training centers, leading to long-term interruptions in skill development efforts. Building disaster-resilient TVET infrastructure and implementing contingency plans are essential to ensuring program continuity in affected regions.

LEGAL FACTORS

- **Legislation:** The NAVTTC Act, along with various provincial Acts and laws, provides a structured framework for technical and vocational education and training (TVET) in Pakistan. These legislations define the roles and responsibilities of relevant authorities, establish standards for curriculum development, and emphasize the importance of competency-based training (CBT). Despite these legal structures, enforcement remains inconsistent due to governance challenges, limited resources, and a lack of technical expertise among implementing bodies. For example, the NAVTTC Act seeks to harmonize TVET policies across the country, but its impact is diluted by fragmented coordination between federal and provincial entities following the 18th Amendment.
- **Labor Laws:** Key policies like the Apprenticeship Ordinance of 1962, the Federal Apprenticeship Act of 2018, and the Khyber Pakhtunkhwa Apprenticeship Act of 2022 aim to promote on-the-job training and formalize skill acquisition within industries. However, these laws need modernization to align with contemporary industry practices and international standards.

The Apprenticeship Ordinance, while foundational, is outdated and lacks provisions for emerging fields such as IT, renewable energy, and digital trades. The newer acts, such as KP's Apprenticeship Act, attempt to address these gaps but require stronger enforcement mechanisms and incentives to encourage employer participation in apprenticeship programs.

- **Regulation Challenges:** Pakistan's informal economy constitutes nearly 72% of the labor market, which operates largely outside the ambit of legal and regulatory frameworks. This sector often employs workers without formal training or certification, limiting the reach and effectiveness of TVET programs. Without regulatory oversight, workers in the informal sector miss out on structured skill development opportunities and recognition of their expertise. Additionally, the lack of integration of informal workers into the formal TVET ecosystem reduces overall workforce productivity and restricts access to higher-income opportunities.

GAP Analysis of TVET sector

1. Access and Inclusion

- **Limited Training Opportunities in Underserved Areas:**

Many regions, particularly rural and underserved areas, lack adequate TVET infrastructure. This results in unequal access to training programs, leaving a significant portion of the population without opportunities to develop employable skills.

- **Gender Disparity in TVET Participation:**

Women's underrepresentation in TVET programs is a significant challenge, especially in the socio-cultural context of Khyber Pakhtunkhwa (KPK). Cultural biases, deeply rooted societal norms, and traditional gender roles often discourage women from pursuing vocational education and technical training. The situation is exacerbated by the lack of women-centric training centers that cater specifically to female learners. This limits their access to a safe and supportive learning environment.

2. Curriculum and Industry Alignment

- **Misalignment with Market Demands:**

The training programs often do not align with current labor market demands, leading to a mismatch between the skills provided by TVET institutions and those required by industries. Emerging fields like IT, renewable energy, and digital skills are particularly underrepresented.

- **Outdated Curricula:**

Conventional curricula and teaching methodologies fail to incorporate modern and competency-based training approaches, making TVET graduates less competitive in the global and national labor markets.

3. Quality Assurance and Certification

- **Weak Certification Systems:**

Poor international recognition of TVET certifications limits the employability of graduates abroad. Additionally, the prevalence of fake certifications undermines the credibility of the system.

- **Inadequate Training for Instructors and Assessors:**

Many instructors lack industry expertise or regular updates on technological advancements, reducing the quality of training provided.

4. Governance and Coordination

- **Fragmented Implementation:**

Overlapping roles and responsibilities between federal and provincial authorities lead to inefficiencies and policy conflicts. For instance, the dual governance structure hampers the development of a unified national strategy.

- **Insufficient Monitoring and Evaluation:**

There is a lack of robust mechanisms to monitor program outcomes and ensure accountability. This results in limited feedback loops for continuous improvement.

5. Resource Allocation

- **Low Budgetary Allocation:**

The funding for TVET is insufficient compared to its demand, resulting in inadequate facilities and infrastructure. The dependency on donor-driven initiatives further undermines sustainability.

- **Inefficiency in Resource Utilization:**

Overlapping training programs funded by various agencies often lead to duplication of efforts, waste of resources, and ineffective outcomes.

6. Post-Training Support

- **Lack of Job Placement Services:**

Many graduates struggle to find employment due to the absence of active job placement centers or career counseling facilities. Weak industry-academia linkages exacerbate this issue.

- **Insufficient Support for Entrepreneurship:**

While entrepreneurship is identified as a priority, practical support such as access to microfinance or mentorship programs remains inadequate.

7. Social Perceptions

- **Negative Public Perception:**

TVET is often viewed as inferior to traditional academic education, deterring enrollment and societal support. This stigma needs to be addressed through public awareness campaigns

GAP Analysis of the 2018 National TVET Policy of Pakistan

Policy Objective	Current Status	Identified Gaps	Recommendations
1. Skills development for economic growth and youth employment	Various skills development training programs are available at both the federal and provincial levels; however, they often lack alignment with key economic priorities and comprehensive youth employment strategies.	1. Limited focus on emerging industries such as IT, AI, and renewable energy. 2. Insufficient outreach in rural areas and for marginalized communities.	1. Align skills development initiatives with high-growth sectors like IT, renewable energy, construction and logistics. 2. Increase outreach to rural and underserved populations through regional TVET centers and awareness campaigns.
2. Increase the number and quality of training opportunities to train at least one million annually	Training capacity has increased but remains far below the target. Private sector engagement is sporadic.	1. Public training centers lack infrastructure and modern equipment to full fill the demand from the local and international. 2. Private sector partnerships are insufficiently formalized.	1. Invest in modernizing public TVET centers with updated facilities. 2. Strengthen public-private partnerships (PPPs) with incentives like tax breaks and co-developed training programs.
3. Introduce national standards-based qualification, assessment, and certification systems	The Pakistan National Vocational Qualifications Framework (PNVQF) has been developed but its implementation is inconsistent.	1. Weak enforcement of national standards across provinces, implemented. 2. Limited global recognition of qualifications.	1. Ensure nationwide enforcement of NVQF with monitoring mechanisms. 2. Align certifications with international standards to improve global recognition and

Policy Objective	Current Status	Identified Gaps	Recommendations
			labor mobility.
4. Design and deliver competency-based education and training (CBT) programs	CBT&A programs have been initiated but are not widely adopted due to conventional curricula and limited faculty training.	1. Conventional curricula that fail to align with current labor market needs only level 2 and Level 3 are implemented. 2. Insufficiently trained instructors to deliver CBT programs effectively.	1. Modernize curricula with industry collaboration. 2. introducing level 4 & 5 CBT&A Qualifications implementation across the country. 3. Launch extensive Training-of-Trainer (ToT) programs to prepare instructors for CBT delivery.
5. Forge new public-private partnerships for direct training and contributions to TVET	Some partnerships exist but lack scalability and long-term commitment.	1. Weak collaboration frameworks between the public and private sectors. 2. Private sector reluctance due to unclear benefits.	1. Create formalized PPP models with clear roles, benefits, and incentives. 2. Establish sector-specific advisory councils to strengthen industry participation.
6. Maintain and expand the export of labor with internationally recognized qualifications	Labor export remains significant, especially to Gulf countries, but qualifications are not widely recognized globally.	1. Inadequate alignment of TVET certifications with international standards. 2. Limited emphasis on language and cultural training for global labor markets.	1. Standardize certifications based on international frameworks. 2. expand the KSA Takamol Certification and assessment system in other countries. 3. Include language and soft skills training for countries like GCC, EU, and Southeast Asia.
7. Linkages with the informal sector to formalize skills acquired informally	Recognition of Prior Learning (RPL) programs have been introduced but have limited coverage and awareness.	1. Low integration of informal workers into formal systems. 2. Limited outreach and awareness about RPL programs among informal	1. Expand RPL programs with outreach initiatives targeting informal workers. 2. Partner with employers to encourage formal recognition of

Policy Objective	Current Status	Identified Gaps	Recommendations
		workers and employers.	informal skills.
8. Reform and revitalize the public TVET sector	Efforts to reform the public TVET sector are ongoing but face challenges in resource allocation, implementation, and human resource development.	1. Inconsistent implementation of reforms across provinces. 2. Resource and funding limitations impede modernization efforts.	1. Allocate dedicated funding to modernizing infrastructure and faculty training. 2. Regularly evaluate reforms and adapt based on performance and outcomes.

Gap Analysis of Pakistan TVET Policy vis-à-vis India, China, Indonesia and Malaysia

A detailed gap analysis of Pakistan's TVET (Technical and Vocational Education and Training) policy compared to those of India, China, Malaysia, and Indonesia highlights several areas where Pakistan lags behind in terms of strategy, implementation, and outcomes. Pakistan's TVET policy primarily focuses on increasing enrolment and unifying standards but lacks a comprehensive approach to integrating industry needs, technology, and global competitiveness. For instance, India's *Skill India* initiative is a robust model that leverages public-private partnerships, promotes industry-aligned training, and implements large-scale skill development programs, ensuring alignment with labor market demands. China has effectively linked its TVET policy with its industrial strategy, emphasizing cutting-edge technologies and fostering strong collaborations between enterprises and educational institutions, which ensures the workforce is prepared for high-value industries like advanced manufacturing. Malaysia's TVET system is globally oriented, focusing on international accreditation, quality assurance, and promoting lifelong learning, making its workforce competitive on an international scale. Indonesia, on the other hand, prioritizes addressing regional skill disparities while integrating digital and entrepreneurial skills into its TVET programs to prepare for a tech-driven future. Pakistan, in comparison, needs to enhance its industry linkages, adopt international standards, incorporate advanced technology into its training programs, and address regional imbalances to make its TVET system more effective and globally relevant. These changes are critical for meeting the challenges of a rapidly evolving global economy and securing economic growth through a skilled workforce.

Comparative Analysis

Technical and Vocational Education and Training (TVET) plays a crucial role in equipping individuals with the practical skills and knowledge needed to meet labor market demands. In developing and emerging economies, where unemployment and underemployment are significant challenges, an efficient TVET sector can enhance productivity, foster innovation, and drive economic growth.

Pakistan, India, Bangladesh, and China are all countries with unique economic dynamics, population sizes, and developmental priorities. While they share similar aspirations of fostering a skilled workforce, the scope, challenges, and investments in their TVET sectors differ significantly. These differences reflect not only their respective economic capacities but also their strategic focus on skill development and workforce readiness.

Key Indicators for Analysis

To understand the status and performance of the TVET sector in these countries, the following indicators are considered:

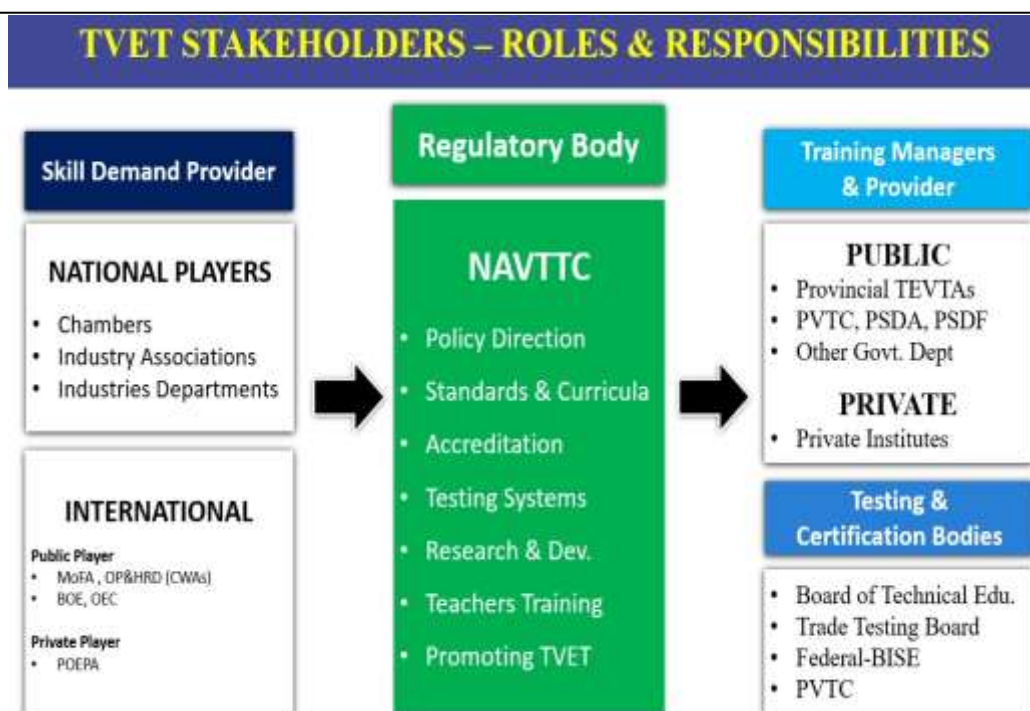
1. **GDP Per Capita** – Reflecting the average income and economic development level, which influences investment in education and skills development.
2. **Currency** – Highlighting the economic context and monetary stability.
3. **Total Government Budget** – Indicating the resources available to address national development priorities.
4. **Education Budget** – Signifying the importance of education within national policymaking.
5. **TVET Budget** – Representing the specific allocation for technical and vocational training.
6. **TVET Enrollment** – A measure of the reach and accessibility of vocational training programs.
7. **Remittance** – Indicating the role of migrant workers, many of whom may rely on TVET for employability abroad.
8. **Remittance as a Percentage of GDP** – Reflecting the economic dependence on expatriate workers.

The comparative analysis provides insights into how these countries prioritize and structure their TVET sectors. Understanding these dynamics helps identify best practices and potential areas of improvement for countries like Pakistan, which faces a pressing need to enhance skills development amidst a burgeoning youth population. It also highlights how economic factors and government priorities shape TVET systems, influencing labor market outcomes and economic growth.

COMPARATIVE ANALYSIS				
Indicator	PAKISTAN	INDIA	BANGLADESH	China
GDP Per Capita (WB 2023)	USD 1,505	USD 2,484	USD 2,529	USD 12,514
Currency	USD 1 = 280 PKR	USD 1 = 83.9 INR	USD 1 = 111 BDT	USD 1 = 7.3 Yuan
Total Budget USD in Billion	51.4 B	530 B	68.5 B	6.2 TR
Education Budget USD in Million	4,468 M	13,670 M	5164 M	90,6000 M
TVET Budget USD in Million	114.5 M 2.4% of Education	418.8 M 3.12% of Education	700.2 M 13.6% of Education	49500 5.4% of Education
TVET Enrollment WB 2023	3.1%	3.4%	6.2%	18.5%
Remittance USD in Million	26,300	120,000	21,600	49,500
Remittance % of GDP	7.8%	3.4%	5.1%	1%

Stakeholders Analysis

The TVET sector in Pakistan, particularly at the federal level and in Khyber Pakhtunkhwa (KPK), involves a range of stakeholders across policy, implementation, and certification. At the federal level, NAVTTC leads policy formulation, standardization, and national coordination. In KPK, KP-TEVTA manages the implementation of vocational training programs aligned with regional needs, focusing on sectors like agriculture, mining, and small-scale manufacturing. Qualification Awarding Bodies (QABs), including provincial technical education boards like the Khyber Pakhtunkhwa Board of Technical Education (KPBTE), Trade Testing Boards (TTBs) and ensure standardized certifications. Employers, industries contribute to aligning TVET with labor market needs, while private training providers and NGOs play critical roles in extending training to underserved areas. International development partners like EU/GIZ, UNHCR and the World Bank, along with the federal Skills for All Strategy enhance infrastructure, curricula, and instructor training to improve TVET outcomes in both federal and provincial contexts.



Issues and Challenges

1. Overlapping Training and Trainees Across Different Agency-Funded Training Projects.

Over 200 billion rupees are being spent by various programs, including provincial TVETAs, PSDF, NAVTTC Youth Skill Programs, Digi Skills and EU/GIZ. This situation arises because the same technical training institutes are approached through multiple training advertisements. Due to a lack of coordination among these agencies, these institutes often submit bids for training contracts to secure funding from multiple sources simultaneously. Unfortunately, many of these institutes lack the capacity and sufficient enrollment to deliver effective training. As a result, the same private institutes owned by TVETAs win the bids and receive funding, claiming they can accommodate 100 trainees. However, they utilize the same youth and courses to extract funds from NAVTTC, PSDF, and EU programs. This leads to a situation where many trainees become accustomed to receiving free training, taking advantage of the system. This fraudulent practice occurs due to overfunding and the limited capacity to train youth effectively at the ground level.

2. Multiple Funding for Developing TVET Curricula/Qualifications

NAVTTC has developed qualifications and curricula in over 75 trades and sectors. Similarly, with the support of EU-GIZ under the TSPP, over 350 qualifications and curricula have been created.

Currently, some IT sector qualifications are being developed through TVET Sector Support Program (British Council Component) recently approved, resulting in significant waste of resources due to a lack of coordination and overlapping efforts.

3. Training of Trainers (TOT) Same Teacher/Instructor Being Trained by Multiple Funding Agencies

The TVET sector in Pakistan is plagued by inefficiencies in teacher training programs due to low absorption capacity and overlapping initiatives by funding agencies such as GIZ-EU, TEVTAs, British Council, DigiSkills, and NAVTTC. While these agencies prioritize teacher training, the lack of coordination results in repetitive training for the same individuals, often selected based on personal relationships rather than merit or need. Additionally, relevant provincial bodies are frequently chosen on the basis of favoritism, making the situation worse. This practice sidelines deserving TVET trainers and instructors while including irrelevant participants, such as university professors and school teachers with no direct link to the vocational training field. These gaps in planning and execution undermine the quality and impact of training programs, leaving the sector ill-equipped to meet its goals.

4. Misalignment of Curriculum with Industry Needs

The curriculum often fails to align with current labor market demands, producing graduates who may be either underqualified or overqualified for available positions. This issue stems from weak partnerships between technical institutions and industries, limiting the program's ability to effectively prepare participants for relevant jobs.

5. Malpractices and Bureaucratic Inefficiency in Skills Development Programs

Corruption within the program and bureaucratic inefficiencies lead to resource misallocation, implementation delays, and reduced accountability. Many centers have a capacity to support minimum/limited trainees but are awarded contracts for maximum, resulting in excess funds that are distributed among monitoring and implementation agency employees. Consequently, around half of the funding goes into the pockets of high-ranking officials and staff illegitimately.

6. Lack of Follow-Up and Post-Training Support

Under the Technical and Vocational Education and Training (TVET) Sector Support Programme (TSSP), GIZ established 130 Job Placement Centers and Career Counseling (JPC & CC) facilities across Pakistan to support graduates in finding relevant employment and utilizing their skills. However, many of these centers are not functional, leaving graduates without adequate post-training support.

As a result, they often struggle to transition into the workforce, find relevant employment, or effectively utilize their acquired skills. The absence of active job placement services, career counseling, and mentorship programs significantly limits the potential impact of TVET initiatives, creating a gap between training and employment opportunities.

7. Shortage of Qualified Trainers/Instructors/Assessors

The TVET program in Pakistan faces a critical shortage of trained and experienced instructors, trainers, and assessors, which significantly impacts the quality of vocational training and assessment. Many instructors and assessors lack the necessary industry expertise and practical skills to deliver effective and up-to-date training or conduct Competency-Based Training and Assessment (CBT&A) effectively. This deficit not only hinders the delivery of high-quality education but also limits the alignment of TVET programs with industry standards, reducing their relevance and employability outcomes for TVET graduates.

8. Massive Fake certifications in TVET Sector

The prevalence of fake certifications significantly undermines trust in Pakistan's TVET system, creating serious challenges for genuine graduates in securing employment both locally and internationally. This issue compromises labor quality, as untrained individuals with counterfeit credentials enter skilled sectors, negatively affecting productivity and workplace safety. In Gulf countries, where many Pakistani workers seek employment, skepticism about the authenticity of certifications has led to stricter verification processes, reducing job opportunities and impacting remittances. Moreover, the widespread presence of fake certificates damages Pakistan's international TVET reputation, deterring global partnerships, funding, and recognition of its skilled workforce.

9. Social Stigma Around Technical Vocational Education and Training

Social biases associating technical and vocational education with lower economic status discourage many from participating. This stigma negatively impacts enrollment, reducing the reach and effectiveness of vocational training initiatives.

10. Weak Monitoring and Evaluation Mechanisms

The TVET program lacks a robust monitoring and evaluation framework, making it difficult to assess impact, address ongoing challenges, or implement continuous improvements. This gap in oversight hinders effective implementation and progress tracking

11. Implementation of Apprenticeship Laws at Federal and Provincial Levels with a Focus on Khyber Pakhtunkhwa (KPK)

The implementation of apprenticeship laws at the federal and provincial levels, particularly in Khyber Pakhtunkhwa (KPK), faces significant challenges due to the absence of well-defined and relevant rules. Without these rules, it becomes difficult to operate the laws effectively and ensure uniform compliance across the board.

12. Mismatch Between Training and Market Needs:

The KPK TVET programs often do not align with the specific demands of local industries, such as mining, agriculture, and construction, resulting in a skills gap.

13. Absence of Modern Training Facilities:

The majority of TVET institutes in KPK do not have the specialized machinery, laboratories, or simulators required for hands-on training in mining-related trades.

- 14. Extending NAVTTC's Mandate to Regulate Levels 6-8 in Technical Education:** Under the National Vocational Qualification Framework (NVQF), Levels 1-5 certifications are within NAVTTC's mandate, while Levels 6-8 degrees are awarded by universities accredited by the Higher Education Commission (HEC). The NAVTTC Act 2011 designates NAVTTC as the regulatory authority for the TVET sector, with NVQF outlining a shared mandate for NAVTTC and HEC in managing higher-level qualifications. Currently, technical universities accredited by HEC are responsible for awarding Level 6-8 degrees, reflecting the collaborative framework established between NAVTTC and HEC.

To streamline the regulation of technical education in Pakistan and ensure alignment with the National Vocational Qualification Framework (NVQF), it is proposed that NAVTTC expand its mandate to include the regulation and awarding of Level 6-8 degrees, along with the accreditation of universities offering these programs. This centralized approach would bring all levels of technical education under NAVTTC's governance, complementing its existing responsibility for Levels 1-5 as outlined in the NAVTTC Act 2011. By consolidating oversight, NAVTTC can ensure consistency, quality assurance, and standardization across technical education. Additionally, this initiative will align programs with current labor market demands, ensure they meet international standards, and strengthen Pakistan's standing in global vocational and technical education. Key actions include expanding NAVTTC's mandate to regulate Levels 6-8, accrediting universities offering technical degrees, centralizing technical education oversight for quality assurance, and aligning education with industry needs and international benchmarks.

Conclusion

The simulation exercise critically evaluated the current policies and practices in the Technical and Vocational Education and Training (TVET) sector in Pakistan, focusing on their impact on employment and industry. The analysis highlighted key gaps in alignment between TVET programs and labor market demands, issues in governance, weak industry-academia linkages, resource limitations, and significant challenges in implementation due to overlapping responsibilities and mismanagement. These challenges have contributed to the persistent skills mismatch, underutilization of the youth potential, and unemployment.

Despite policy reforms like the National Skills Strategy and the establishment of bodies such as NAVTTC and provincial TEVTAs, the sector struggles with insufficient scalability, outdated curricula, and inadequate infrastructure. This has hampered the employability of the youth and affected the competitiveness of the workforce both nationally and internationally. The SWOT, GAP, and EETH analyses further underscored the need for systemic reforms, improved governance, and enhanced resource allocation to revitalize the TVET sector.

Recommendations

1. Policy and Governance Reforms:

- Strengthen inter-agency coordination at federal and provincial levels to eliminate policy overlaps and inefficiencies.
- Fully enforce existing legal frameworks like the NAVTTC Act and Apprenticeship Acts to ensure accountability.
- Establish a comprehensive quality assurance framework for consistency in training and certification.
- Matric Tech' Pathways for Integrating Technical and Vocational Education and Training (TVET) and formal education across the country.

2. Curriculum and Training Alignment:

- Update and align curricula with market needs, focusing on high-demand sectors like IT, renewable energy, and construction.
- Promote competency-based training and integrate modern teaching methodologies, including e-learning platforms.
- Encourage industry participation in curriculum design and program delivery to ensure relevance.
- Implementation of Level 4 and Level 5 CBT Qualifications across the country in phases.

3. Resource Allocation and Infrastructure Development:

- Increase funding for the TVET sector and prioritize resource allocation for infrastructure development.
- Expand training facilities in underserved regions, ensuring inclusivity and access for marginalized groups.

4. Capacity Building:

- Regularly train and certify TVET instructors in both pedagogical and technical skills to enhance the quality of training delivery.
- Organize comprehensive CBT&A training for instructors, assessors, and principals across public and private sectors to ensure alignment with competency-based standards.
- Streamline and enforce the National Assessors Registration Process nationwide with clear criteria, transparent procedures, and digital platforms for efficient and inclusive registration.

5. Technology Integration:

- Simulator-based training is particularly valuable in high-demand technical fields such as welding, heavy machinery operation, electrical work, and the automobile sector.
- Incorporate digital and green skills into training programs to meet the demands of a rapidly evolving market.
- Utilize digital tools for monitoring, evaluation, and data-driven decision-making.

6. Public Perception and Social Awareness:

- Develop an effective communication strategy to change the societal perception of TVET as inferior to traditional education.
- Highlight success stories to inspire youth and promote vocational training as a viable career path.

7. Job Placement and Post-Training Support:

- Revitalize job placement centers and career counseling facilities to provide graduates with employment opportunities and guidance.
- Establish mentorship programs and incentivize industries to offer internships and apprenticeships programs.

8. Addressing Fraud and Certification Issues:

- Implement stricter verification processes to combat the issue of fake certifications.
- Collaborate with international bodies to regain trust in the credibility of Pakistan's TVET certifications.
- Expand RPL programs with outreach initiatives targeting informal workers.

9. Gender Inclusivity:

- Introduce women-centric programs and expand training facilities for females to ensure equal participation.
- Provide financial assistance and incentives to encourage female enrollments

10. Private Sector and International Partnerships:

- Foster public-private partnerships for funding, training, and employment opportunities.
- Align certifications with international standards to boost global employability and remittances

11. Extending NAVTTC's Mandate to Regulate Levels 6-8 in Technical Education:

- To extend NAVTTC's mandate to regulate and award Level 6-8 degrees, transferring accreditation authority for technical universities from HEC to NAVTTC. This will ensure centralized governance, standardization, and alignment of technical education with labor market and international standards.

LOG FRAME

S.no	Activity	Agency	Time frame
1	Strengthening Coordination among Federal and Provincial entities	NAV TTC and Provincial TEVTAs	1-3 years
2.	Enforcement of Legal Frameworks	NAV TTC and TEVTAs	1-3 years
3	Establishing Quality Assurance Framework for Training and certification	NAV TTC	1-3 years
4	Metric tech Pathways	NAV TTC	5-7 years
5	Curriculum Alignment with Market needs	NAV TTC	3-5 years
6.	Promote Competency Based Training	NACTTC & TEVTAs	3-5 years
7	Industry Participation in Curriculum design	NAV TTC & Industries	3-5 Years
8	Implementation of Level 4 & 5 CBT qualification	NACTTC & TEVTAs	1-3 years
9	Increase Funding for TVET sector	Finance Division/ NAV TTC & TEVTAs	5-7 years
10	Expand Training facilities in under privileged regions	NAV TTC & TEVTAs	1-3 years
11	Continuous Professional Development of Trainers on pedagogy	NAV TTC & TEVTAs	5-7 years
12	Comprehensive CBT for instructors, assessors and principals	NAV TTC & TEVTAs	3-5 years
13	Streamlining National Assessors registration process	NAV TTC	1-3 years
14	Simulator based Training	NAV TTC	5-7
15	Incorporating Green Skills in Training Programs	NAV TTC & TEVTAs	3-5 years
16	Utilization of Digital tools for M&E	NAV TTC & TEVTAs	1-3 years

17	Development of Communication Strategy of social perception	NAV TTC	1-3 years
18	Highlight success stories for inspiration	NAV TTC & TEVTAs	1-3 years
19	Revitalize Job Placement centers and Career Counselling	NAV TTC and TEVTAs	1-3 years
20	Establish Mentorship Program and incentivize industries	NAV TTC & TEVTAs	1-3 years
21	Implement strict verification process for fake certification	NAV TTC	1-3 years
22	Collaborate with international bodies to regain trust	NAV TTC	5-7 years
23	Expand RPL programs	NAV TTC & TEVTAs	1-3 years
24	Introduce Women Centric Programs	NAV TTC & TEVTAs	1-3 years
25	Financial Assistance and Incentives to encourage female enrolment	NAV TTC & TEVTAs	1-3 years
26	Foster PPP for funding, training and employment Opportunities	NAV TTC & TEVTAs	1-3 years
27	Align certification with International Standards	NAV TTC	3-5 years
28	Award of Degree to Level 6-8 degree by NAV TTC	NAV TTC and HEC	3-5 years

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