P@SHA ICT Awards 2021

Roundtable: Skilled HR Development

Location: Beach Luxury Hotel, Karachi **Date:** October 23, 2021

Moderators

Bilal Mahmood
MD - Contour Software (Pvt) Limited
Member - Skill Committee

Osman Nasir
MD – Pakistan Software Export Board (PSEB)

Salman Dar
CEO - Itroos Private Limited
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COO - Genetech Solutions
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Skill
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Ali Ihsan
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CEO Vizteck Solutions
Member - Skill Committee

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CEO Care Private Limited
Member - Skill Committee

Context

Pakistan Software House Association's Skill Development and Training Committee has been working on finding and building viable solutions for developing skilled human capital for the technology ecosystem in Pakistan. The committee has initiated multiple short, medium, and long-term programs to bridge the skills gap and to help both academia and industry in finding the balance that is needed to support the high-pace hiring and up-skilling.

The members have been working to improve how the industry can attract and retain high-quality talent and also bridge the skills gap. This can only be done by working closely with both academia and industry and doing multiple interventions on different levels.

The skills committee did a roundtable with multiple stakeholders, from the industry, academia, and government, to share the committee's progress as well as collect feedback on the work they have done in the previous year. The session also included a consultation session on planning new initiatives for the coming year.

This paper summarizes the discussion and puts out the summaries of the programs as well as the way forward for the committee. The details are extracted from the session notes as well as the recordings provided by the P@SHA secretariat.

Problem
Statement

Pakistan is a country with an abundance of talent, especially in the younger generation, and with the rise of information technology services worldwide, Pakistan has been one of the most attractive destinations for outsourcing. In the past couple of decades, we have seen a massive rise in the amount of foreign revenue earned by Pakistani companies and freelancers by providing top-notch technology services to businesses worldwide.

We have seen another massive wave of incoming work during this current pandemic as most of the world's businesses are embracing digital technologies and need skilled talent to develop and support solutions for them. Currently, Pakistani companies are facing difficulties in hiring the right talent, due to low supply and high demand, as well as, the lack of skilled human resources available due to the gap between industry and academia.

The big problem to solve here is to overcome the hiring crunch. We are seeing that the cost of human resources has gone up from 35% to nearly 60%. This means that Pakistan is no longer a low-cost country for technology services. We are also seeing big investments being made by our neighbor in skill-building, which creates an influx of new talent available at lower costs and brings in more international business for them. We want to ensure that we stay an attractive destination for businesses worldwide and bring in more revenue to the country by expanding the technology industry exponentially.

We also have issues on the side of supply as students coming out of universities are not employable or trained in the latest technologies. Companies hire fresh graduates and then train them for 3 to 6 months. The new hire can generate value for the company after this initial training period. Out of 25000 graduates that come out of Pakistani universities each year, nearly 80% of them need extensive on-the-job training to be able to bring in revenue for their employers.

Initiatives

In the past years, P@SHA's skill development committee has formed multiple collaborations and partnerships with both public and private sector organizations to launch and run multiple initiatives and programs to solve these problems.

Let's start with the short-term initiatives.

CXO Mentorship
(January 2021 – December 2021)

We started a mentorship program for connecting young/new CXOs with senior industry leaders for both mentorship and networking. The areas of discussion involve scaling operations, access to new markets, and hiring and retaining the right talent. So far, we have matched 10 CXO mentors with 11 CXO mentees. Each mentee will have to spend 18 hours in a calendar year with their mentor. Both mentors and mentees will provide periodic feedback on this initiative to the P@SHA secretariat and the Skills Committee.

Departmental Coaching Program

To accelerate growth and efficiency in different departments, including HR, Sales, and Agile, we onboarded 5 training partners who conducted 65 hours of training within 3 months. This program was later morphed into an ongoing masterclass initiative from April 2021. These masterclasses cover specialized skill sets in both technical and core skills and the class duration is 2-hours. So far, we have conducted 14 masterclasses with 315 attendees overall.

Onto the Mid to Long Term Initiatives:

Professional Skill Development Program (PSDP)

This program has been designed to close the skilled resource gap. This started by vetting the applications by training partners and out of 21, 10 were selected to run the initial cycle. So far, we have conducted 60 training sessions with substantial subsidies to P@SHA member companies. We have recently onboard 9 new training partners to expand this program.

And now, the long-term initiatives:

Academia-Bridge Program

This program was launched in September 2021, for bridging the academic industry gap by forming a collaboration between a software company (Industry Partner) and a university (Academia Partner) to provide hands-on training to students by replacing their course labs with a newer technology stack and bringing in senior engineers and technologists from the industry to conduct these labs. The pilot has already been in action with a collaboration between Contour Software and Sir Syed University of Engineering and Technology, where the team from contour has updated the lab content and is teaching MERN/MEAN stack in the Web Engineering course labs. Currently, 250 students have imparted training through this pilot project.

Industry Readiness Framework

P@SHA has now been closely working with the Ministry of Information Technology and Telecommunication for expanding the impact. For starters, P@SHA has rolled out a survey "IT Industry Training Requirement" for finding the most in-demand technology tracks and tools required by the industry. We have received responses from 180 organizations and so far, we have seen MEAN/MERN, PHP and Frameworks, Android-JAVA, IOS-Objective C and Swift, React Native, Cloud Computing-AWS and Azure, and Flutter as the most in-demand tools and technologies. This data is now shared with government agencies. To improve the Skills of the current graduates, non-graduates and for upskilling and reskilling, P@SHA with PSEB is working on the structure of an Industry readiness framework. This framework will ensure that all registered training bodies will conduct training based on a Standardized curriculum that is vetted and approved by P@SHA and PSEB.

Industry Based Evaluations / IRAX

This will include standardized testing criteria for students for helping with quick placements and giving access to this data to the industry. A test should be conducted for all fresh graduates from all over the country and this will determine their skillset and companies will be able to find and hire excellent talent. This will also give visibility to students and professionals from remote or rural areas. The evaluation matrix can be used to measure aptitude, attitude, mathematical and problem-solving skills. Currently, a local company is helping PSEB with creating standardized evaluation tests for students and fresh graduates.

2- year Associate Degree Program

A structure is in the process where a 2-year associate degree will be launched, which will supply talent in a shorter time. Students can enroll in the 2-year degree program, find work and later on, convert it into a 4-year degree by completing the compulsory and specialized courses. This will also include an internship component. All of these initiatives are targeted towards improving the supply and employability of the talent for the local tech companies. Each initiative has its own set of performance criteria and reporting lines. For keeping this paper focused, we are only covering the roundtable and not the individual initiatives in detail.

The Associate Degree program will be designed in a way catering to both the generalized and subject specialization needs and requirements. So, graduating students can attain specialization in certain areas (web/mobile Development, Software Quality assurance, Unity Developer, etc.)

According to a recent report of the UNDP on Pakistan National Human Development Report, 42% of Pakistan's population was the middle class which declined to 36% by 2018–2019, implying that the middle class is increasingly being 'squeezed.' Like much of the rest of the population, a large proportion of middle-class households is finding it difficult to make both ends meet. Thus, affordable degree programs with the potential of generating immediate employment are needed of an hour.

Internship program by PSEB

PSEB has also initiated a country-wise internship program. This will connect students with the hiring companies. A stipend of 20,000 PKR per month will be reimbursed by PSEB and companies will provide free of cost training and courses to their employees and interns as part of this initiative. So far, 3500 students have registered on the platform. Our focus is on Balochistan right now, as we are looking to get at least 500 students to be hired as interns. P@SHA member companies/ employers will be given preference.

Audience

Input

The program and initiatives were well received and some excellent pointers and feedback was shared by the stakeholders in the audience. Here is a summary of the audience feedback:

- Our country also lacks a research culture so most faculty members are unable to update their knowledge and skill set. They just keep on teaching the same things over and over again from an outdated curriculum. P@SHA should also start an ongoing industry internship program for faculty members where faculty will go to the industry on projects and assignments to stay up-to-date. We also need to hire teachers from the industry with at least a few years of hands-on experience.
- An excellent case study can be from India where they have trained a massive number of resources on technology skills to make their country the first choice in outsourcing technology services. A huge governmental investment is also part of their programs and the same level of commitment can be seen from private companies as they are utilizing their CSR budgets to help achieve this goal. They are also closely monitoring and constantly evaluating their efforts and optimizing their ROI with the help of J. P. Morgan, Sattva, and NASSCOM.

- A train the trainer program can also help in scaling the efforts as teachers should be trained to become better teachers and should get opportunities to improve their skill set. This will help in scaling the impact as these faculty members teach hundreds and thousands of students each year.

- game-changer. We need both internships and apprenticeship structures. These will bring in long-term benefits and students will be able to get trained as well as find ways to support themselves. This will also improve the retention rate as completing an apprenticeship at an organization will be part of their degree requirements. Students can either pick between a final year project or an apprenticeship, which will have two 6-months internships.

- Communication, presentation, and leadership skills should be part of the curriculum. We also need a few interventions to ensure that they understand work ethics and integrity. We have multiple schooling systems in the country and students come from different backgrounds so this gap also needs to be filled in.

- Vocational training or boot camps can provide a quick turnaround time in supplying the talent. We need to invest in a vocational training network, just like our neighbor country. Finding the right curriculum or course outlines is not a problem anymore as it has become a commodity. We need mass-level campaigns to encourage students from rural or remote areas to opt for technology education and/or training.

- Tests like data.com or Hackerrank are currently used by organizations to determine the skill level of a candidate. This will later be replaced by our launched evaluation initiative.

- A mindset shift is required to successfully implement the 2-year degree program as we will need to change the minds of not only academia and industry but also students and their parents. A nationwide campaign can help here and provide confidence to students and parents that there will be ample opportunities for them after completing their associate degree. Making it a stackable program will help and students can complete a bachelor's degree later on.

- P@SHA should play a role in the regulation of the curriculum structure for the universities.

- Some findings from the above case study include:
  - The range of ROI is from 2X to 19X in multiple programs.
  - High investment in a program doesn't necessarily result in a higher salary per candidate.
  - Training programs conducted within academia provided better ROI for graduate candidates than external training centers.
  - In-person training results in better ROI than blended learning.
  - Hands-on training with a focus on advanced technical skills results in better ROI.

- Industry-based final-year projects can also help bridge the gap by involving students, faculty, and industry experts. We also don't see a lot of industry people moving to academia due to a huge salary gap, as faculty members are paid very less when compared to the industry experts. Appointing visiting teachers is also frowned upon due to the Academic Regulatory Environment and a serious discussion and intervention are required there.

- We also see an influx of self-taught people who are mostly working as freelancers. They also bring a lot of revenue to the country but most of which is undocumented and needs to come in from proper channels so that we have the right data for decision-making.

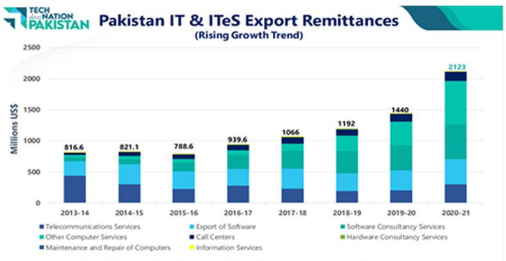
- For the industry readiness framework, we need to keep in mind the demand and requirements of each city. This can be done by building working groups from each city and for each program to ensure excellent participation and diversity of thought and ideas.

- technical skills and other core skills, like communication skills will be the key in launching a 2-year degree program, as we do need quick talent but at the same time, we can't forget the importance of the right people's skills and attitude.

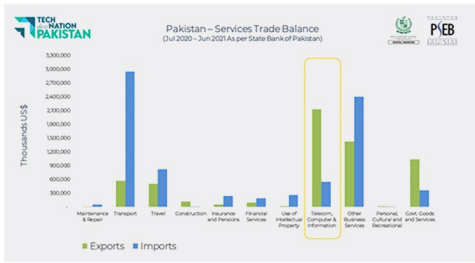
- A 2-year degree program will be less expensive as we need to keep the socioeconomic factors in mind. These students need a quicker pace in reaching the job market and we can also start with online or blended learning programs, such as the ones already being run by Virtual University.

Data Points

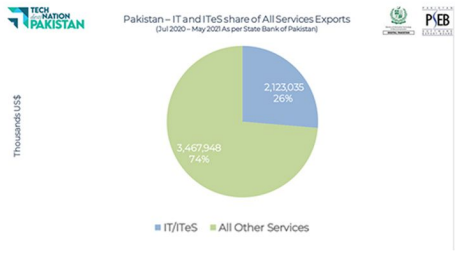
Following Data points were shown by Osman Nasir from PSEB to remind everyone of the light at the end of the tunnel, the urgency of the situation, and its drastic impact on all stakeholders.



Pakistan's IT and ITeS Export Remittances - Rising Growth Trend



Pakistan - Service Trade Balance (July 2020 - June 2021 as per SBP)



Pakistan - IT and ITeS share of all Services Exports (July 2020 - May 2021 as per SBP)

Interesting insights

As shown in graph 2, compared to all other export industries, the import inputs going into the IT & ITeS Industry is nearly inconsequential compared to in the other industries. Thus, highlighting the immense potential and contributions of the IT and ITeS sector.

There is a huge difference in export revenue being generated by a skilled person working for an organized company **(63%)**, versus when working as a freelancer **(17%)**. Out of **$2.123 billion**, **$363** million is brought in by IT Freelancers where **$1.27 billion** is brought in by the IT and IteS companies.

According to Payoneer, there are currently 160,000 active freelancers. However, apart from Payoneer clients, there are an estimated **100,000 active freelancers**. Thus, resulting in **250,000 active freelancers nationwide**.
(Note: Active freelancers are those who have brought in $100 at least in the past 3 months).

Way Forward

- Short-term and mid-term programs should be kept running for the upcoming years as we are seeing real value being delivered.
- A collaboration between Kamyab Jawaan program, P@SHA, and PSEB can be looked into.
- Both academic and industry needs to be on board for all of these initiatives as the industry is the one consuming talent coming from academia. Be it ensuring jobs for associate degree holders, FYP advisors, or providing internships and apprenticeships to students.
- Training the trainer and faculty internship programs can be another area of intervention to ensure that academia is well-equipped to meet the demands of the industry.
- For the Academia-Industry partnerships, we need more industry and academic partners to join hands and have their elective labs being taught by industry experts.
- Keeping in mind the urgency to solve these problems, we need interventions on different levels to ensure that we are solving the right problems and scaling our solutions as well, so initiatives like the PSEB internship program and 2-year associate degree program will require careful deliberation on the impact and criteria for measuring the success of these long-term initiatives.
- Hands-on training must be the most important part of skilling up students and early professionals as well as equipping them with the right communication and leadership skills.

Conclusion

Both academia and the industry are the key stakeholders in this area and they need to work together to help bring more opportunities to the country by doing their respective parts. P@SHA is in a unique and strategic position to help facilitate synergy between the stakeholders and bring people together to build scalable and sustainable solutions. We want more work to come into Pakistan and to become the top destination for technology services in the world. We need more skilled talent to fill in the hundreds of open positions in the country and also find ways to market our country's capabilities to the world.

The efforts by P@SHA, PSEB, Academia, and the Industry are for the mutual benefit of everyone involved as well as for the country because technology service revenue has been an important pillar of our economy. We are looking towards a brighter future with more learning and job opportunities for everyone and being at the forefront of the world's digital revolution.

Appendix

List of Roundtable Participants

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