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**AN ANALYSIS OF THE DISPARITY BETWEEN THE  
EXISTING COMPETENCIES OF SRI LANKAN  
COMPUTING BACHELOR'S DEGREE GRADUATES AND  
THE INDUSTRY EXPECTATIONS**

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## **DECLARATION**

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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The above candidate has carried out research for the PhD/MPhil/Masters thesis/dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Dr. M.P.A.P. Wijayasiri

Name of Supervisor:

15.07.2025

Signature of the Supervisor:

Date:

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## ABSTRACT

The rapid growth of Sri Lanka's Information Technology (IT) sector underscores the urgent need to bridge competency gaps between computing graduates and industry requirements. This study explores the disparity between the skills imparted by academic institutions and the competencies demanded by the IT sector, emphasizing its implications for employability, economic growth, and industry competitiveness. Using qualitative research methods, the study involved structured interviews with recent graduates and industry professionals, providing a dual perspective on the challenges and opportunities for competency alignment. Findings reveal significant gaps in technical skills, such as programming proficiency and familiarity with emerging technologies, as well as deficits in soft skills like communication, teamwork, and adaptability. The absence of practical training, internships, and industry exposure within academic programs further exacerbates these challenges. The research highlights the role of higher education institutions, industry stakeholders, and policymakers in addressing these gaps through curriculum reforms, enhanced academia-industry collaboration, and the promotion of lifelong learning. The study concludes that bridging competency gaps is essential for enhancing graduate employability, reducing youth unemployment, and fostering a globally competitive IT sector. Recommendations include the integration of industry-standard tools and technologies into academic curricula, structured internships, and policy interventions to support collaborative efforts. By addressing these gaps, Sri Lanka can unlock the potential of its IT workforce, sustain its economic growth, and secure its position as a regional leader in technology innovation.

**Keywords:** Skill gap, Graduate employability, IT industry, Curriculum reform

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# CHAPTER 1

## INTRODUCTION

Sri Lanka's IT sector has evolved significantly in the past few decades. Several factors have driven this growth, including access to advanced technologies, government support towards improving the uptake of digital platforms, and local and international demand for IT services among others (Wijesinghe et al., 2020). It has grown not only limited to software development but also encompassing fields like cyber security, data analysis, cloud solutions, BPO etc and therefore acts as a pillar of Sri Lanka's economy. This growth is also reflected in the increase in talent outsourced from countries like the US (Figure 1.1) over the past few years.

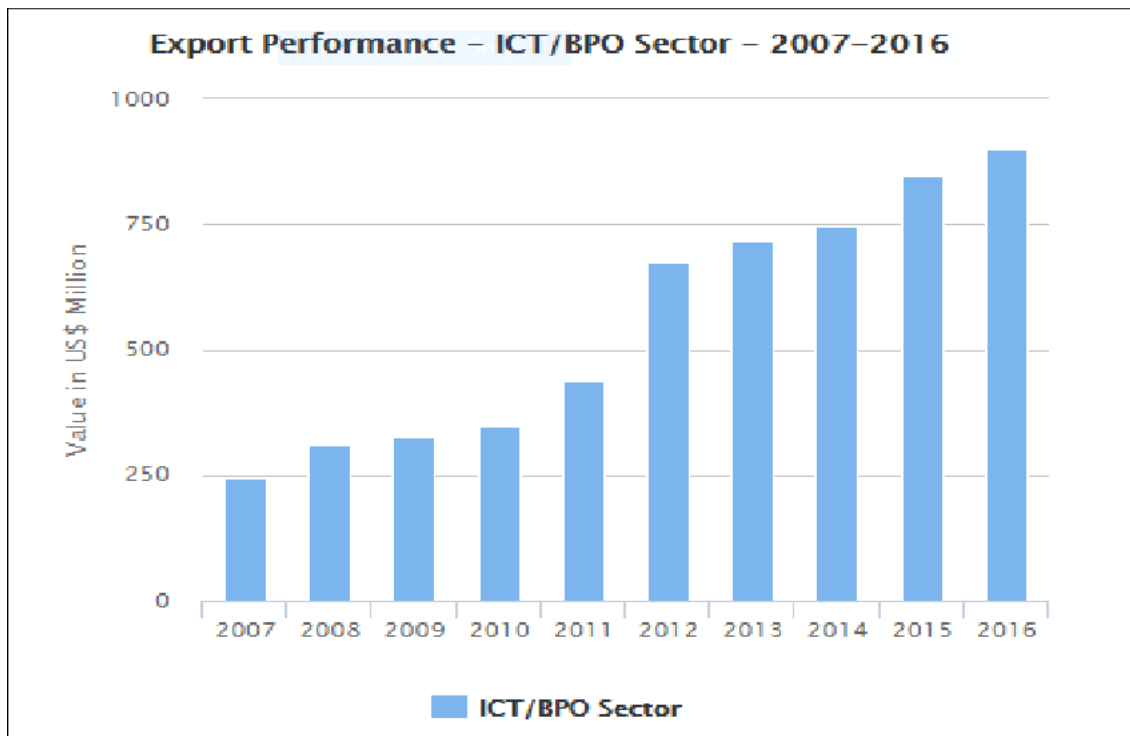


Figure 0.1 *Information and Communication Technology Exports from Sri Lanka in US\$ Millions*(Yapa, Senathiraja and Kauranen, 2018).

Significant shifts in technology have helped the growth of the IT industry in Sri Lanka. The use of advanced technologies including artificial intelligence (AI), machine learning, and blockchain as well as IoT has put Sri Lankan IT firms in a position to create solutions to serve their international clients (Doluweera 2024). Although these inventions have evolved the speed and effectiveness of the businesses they have also given out new ways of growth and development in the sector. In the ever-changing IT world, the Sri Lankan IT industry has to follow these changes to fit the dynamic global environment.

The IT sector has been a great contributor to the Sri Lankan economy and has created ample employment opportunities for a massive workforce (SLASSCOM, 2021). It is stated that the IT industry is one of the major sources of foreign currency earners for Sri Lanka (Board of Investment of Sri Lanka, n.d.) and has a conclusive and progressive growth to the GDP of Sri Lanka.

The Information Technology sector of Sri Lanka holds an important position in the upward mobility of the competitiveness level of the country in the international arena. A skilled workforce, innovation and technological readiness are some of the factors through which Sri Lanka can establish a strong foothold within the world's IT market (Trade.gov, 2022). It does this not only to draw international clientele but also to enhance the nation's ranking on a variety of economic indexes.

As it can also be inferred from the above discussion, the role of the IT sector in the economy goes beyond providing numerical values. Organisations consider it as a tool to stimulate change in several fields, and as a means to advance organisational productivity, efficiency and service quality. The sector has also spearheaded the information technology integration of primary industries like agriculture, manufacturing, and financial services for improving competitiveness and development. In addition, there are higher numbers of new IT-based ventures in Sri Lanka which contribute to new forms of business and services, and in turn, help to build up economic development and encourage innovative culture.

## **1.1 Importance of Competency Alignment**

Competency alignment is the process of matching the acquired competencies and credentials that learners acquire from the educational programs to the requirements expected in the market (Baker et al., 2009). In light of this, it is important when it comes to the area of higher learning, especially in the field of computing and the like. Since various industries experience some transformations because of advances in technology, the skills that graduates need also change. Thus, educational institutions need to revisit their curricula and their methods of training concerning these needs. This alignment is not only about an educational policy issue but is a very essential question for the further socio-economic development of a nation.

## **1.2 The Role of Higher Education in Competency Development**

Tertiary institutions are expected to produce student who are capable of functioning optimally in the workplaces after acquiring the relevant skills (Crebert et al., 2004). In technical fields such as computing, these competencies are a combination of; technical competencies such as coding, software development, and ability to analyze data critically, and interpersonal competencies such as critical thinking, logical problem solving, collaboration, and interpersonal communication skills (Qadir et al., 2020). The acquisition of these competencies should therefore be informed by the current and future needs of the industry so as to produce graduates that can effectively fill positions in the industry upon completion of their degree programs.

IT is among Sri Lanka's leading industries that is in a state of continuous revolution and innovation. Indeed, IT competent profiles are thus continually shifting with time. It, therefore, has become essential that higher education institutions are aware of these changes and factor them into programs being offered. If this is not done, the outcome would be graduation holders who are not ready for the world of work hence guaranteeing their joblessness or underemployment thus delaying the nation's development agenda (Adely et al., 2021).

## **1.3 Impact of Competency Misalignment on Employability**

Educational employment readiness, which means the capacity of graduates to find and keep jobs within their area of specialization, is essential since employability is a major goal of higher education (Benson, 2023). Thus the level of competencies acquired translates to employability depending on the relation between the competencies acquired and those demanded in the employment market (Collect et al., 2015). In the case where graduates have the right skills and knowledge i.e. skills demanded by the employers they

are likely to be employed and even perform well on the job. On the other hand, there are times when what is taught in our educational programs does not tally with the demand in the marketplace, then graduates will not get job, others will be forced to work in positions that does not tap them to the fullest.

It has been noted above that the IT industry is one of the leading employer categories of university graduates specifically in Sri Lanka, for computing, information technology and other related fields (Sri Lanka Export Development Board, n.d.). However, reports and studies have pointed out uplifted concern with regard to competencies of these graduates not meeting employers' expectations (Weligamage and Siengthai, 2003). This misalignment can be observed in several ways including the ability to code in certain languages, capability to solve certain problems or lack of experience with new toys in the area. Consequently, employers might have to spend more time and money training new employees, or set their sights on selecting more qualified candidates with prior experiences or, who come from different education fields, which just adds to concentrated unemployment or underemployment of the nation's young generation of university graduates.

#### **1.4 The Broader Economic Implications of Competency Misalignment**

Competency misalignment is not only a person's problem because it poses threats to the well-being of the economy as a system. In this scenario, where numerous graduates are jobless, then they are either underemployed or unemployed and therefore this greatly contributes to the rate of unemployment hence exerting much pressure on the public and social services. In addition, situations such as underemployment where employees work on unlikeable jobs that do not allow them to utilize their skills, low job satisfaction and subsequently low productivity are likely to occur hence slowing down economic development (Smith, 2018; Jones & Taylor, 2020).

For industries like the IT industry that depends so much on innovation and competitiveness as some of the cardinal factors of the industry, having a workforce that is deficient in competencies will be a thorn in the sides of competitiveness and innovation hence affecting the ability of firms in the industry to do business competitively in the global market (Brown & Williams, 2019). This can slow down the advancement of the industry, and decreases its potential of contributing to the position of the nation's economy. IT industry is one of the most vibrant industries in the Sri Lankan context contributing a chunk of the GDP and the foreign exchange earnings (Sri Lanka IT Industry Report, 2021). The IT industry needs the right set of competencies among the graduating

students to continue the growth of the industry as well as the nation's economy (Sri Lanka IT Industry Report, 2021).

### **1.5 The Role of Industry in Shaping Educational Competencies**

It is the responsibility of higher education institutions to produce competent graduates, however, there is a significant role that industry players have to play as well. As it has been mentioned earlier, employers are well-placed to offer information on the existing and emerging needs for skills in the market. They could also be valuable partners in input to the development of curricula, they can provide practical training grounds, and assess the performance of graduates (Davis & Chen, 2017).

Some of the successful partnership models are visible between the IT industry of Sri Lanka and the higher learning establishments. Due to these alliances, programs have been created to specifically meet the industry needs, internships and apprenticeships to give the students practical experience (Wijesinghe & Perera, 2020). Nevertheless, there is still something that can be done. For example, industry-academia interaction that occurs more frequently and on a more structured basis might facilitate the successful alignment of educational offerings with prevailing industry conditions (Davis & Chen, 2017; Wijesinghe & Perera, 2020).

### **1.6 The Importance of Lifelong Learning in Competency Alignment**

Competency alignment is not a one-shot process, but a continuous process that has to be practiced in the spirit of lifelong learning. In view of this fact, the competencies that are acceptable today may not be acceptable tomorrow because the technology that is in the market today may not be there tomorrow. Hence, the practice and process of learning must continue throughout one's career after getting a degree as a graduate (Perera, 2015). Institutions can contribute to this endeavour through fully online and flexible modes of delivery and such learning formats as microcredentials that can help people skill up or retrain at will (UNESCO, 2012).

With respect to the Sri Lankan IT sector, there is a need to embrace lifelong learning because of the dynamic and fast-changing nature of technology (Wijesinghe & Perera, 2015). It is also important for employers to train employees on new trends since this is considered a valuable asset (Lanka Business Online, 2023). Employers and educational institutions play an important role because they have to help the workforce improve its performance and prepare for future demands (UNESCO, 2012).

### **1.7 Challenges to Achieving Competency Alignment**

It is, however, important to note that getting to competency alignment has its own unique problems. Arguably, one of the most significant issues is to identify the difference between the speed of industry evolution and institutional adjustment. Curriculum development procedures take time and may involve a number of bureaucratic procedures, hence institutions lag behind in adopting current industry trends (Wijesinghe & Perera, 2015). Second, existing skill deficits can be retained within institutions with little or no capabilities for conveying new or innovative technologies (Lanka Business Online, 2023).

The second area of concern is that the needs of the IT department are diverse and have a great variety. What may be needed to be accomplished in a given software engineer's position might be completely different from what may be expected in a cybersecurity analyst or even a data scientist. Schools must therefore provide a general ground upon which students are given a general education while at the same time imparting specific skill sets in certain fields (Perera, 2015). This remains challenging, particularly in resource-constrained environments. (UNESCO, 2012).

Lastly, there might be some learner resistance to change on the part of both educators and other professionals. Some academics may be afraid to embrace change or use new approaches in the classroom, on the other hand, business personnel may be conservative about spending, training, or collaborating with academia. These are areas that must be addressed by all the players from educators, the industrial sector, and the government (Perera, 2015).

## **1.8 Problem Statement**

Despite the rapid expansion of Sri Lanka's IT sector and the increasing demand for skilled computing professionals, a significant gap remains between the competencies acquired by computing graduates and the expectations of the IT industry. This misalignment affects graduate employability, burdens industry with additional training needs, and limits the overall competitiveness of the national workforce. There is a pressing need to identify and analyze the root causes of this disparity in order to recommend targeted interventions that can enhance curriculum relevance and support sustainable economic development.

## **1.9 Research Objectives**

- To assess the industry readiness of computing graduates in Sri Lanka by evaluating their technical competencies, practical experience, and soft skills in relation to current IT workplace demands.
- To explore the nature and extent of the mismatch between the skills acquired by computing graduates through university education and the expectations of employers in Sri Lanka's IT sector.
- To recommend targeted strategies for improving the alignment between academic curricula and industry needs, including curriculum reforms, enhanced industry-academia collaboration, and the integration of emerging technologies and soft skill development.

### **1.10 Importance of Study**

The significance of this study lies in its potential to address the critical gap between the competencies of computing graduates in Sri Lanka and the expectations of the IT industry. The IT sector is a cornerstone of Sri Lanka's economy, contributing significantly to GDP, foreign exchange earnings, and employment opportunities. However, the dynamic nature of technology and its applications has led to a constant evolution of industry demands, often leaving academic institutions struggling to keep pace. This misalignment results in graduates who may lack the technical, analytical, or interpersonal skills required to succeed in the workplace (Wijesinghe & Perera, 2015).

By analyzing the disparity between the existing competencies of computing graduates and industry expectations, this research aims to provide actionable insights for curriculum development and educational policy. Aligning graduate skills with market requirements is essential not only for enhancing employability but also for strengthening the IT sector's ability to innovate, compete globally, and sustain its role as a key driver of economic development. Furthermore, this study underscores the importance of collaborative efforts between academia, industry, and policymakers to foster a workforce that is both adaptable and capable of meeting future.

This research holds broader implications for economic growth and social development. Addressing competency misalignment can mitigate issues such as graduate unemployment, underemployment, and job dissatisfaction while enabling the IT sector to maintain its momentum as a pillar of national progress. By exploring these challenges and proposing strategies to overcome them, this study contributes to the broader discourse on the role of education in driving sustainable economic development (Wijesinghe & Perera, 2015).



## CHAPTER 2

### LITERATURE REVIEW

The disparity between the competencies of graduates and the expectations of the IT industry is a significant challenge in higher education. Competency gaps can affect graduate employability, the industry's ability to innovate, and the economic growth of nations. This literature review explores these issues within the context of Sri Lanka's IT sector, a rapidly growing industry crucial to the country's GDP and global competitiveness.

The aim of this review is to synthesize existing knowledge on competency alignment in higher education, with a focus on computing disciplines. The review begins by examining the evolution of Sri Lanka's IT sector and the skills required to sustain its growth. Subsequently, it explores competency frameworks in education, identifies gaps in graduate skills, and evaluates efforts by academia, industry, and government to address these gaps. Particular attention is paid to global and local research, highlighting the unique challenges faced by Sri Lankan educational institutions and industry professionals.

Addressing these challenges requires understanding the interplay between technological advancements, industry needs, and academic preparation. This review underscores the importance of collaboration between academia and industry, continuous skill development, and policy interventions. Ultimately, it lays the groundwork for the research, which aims to provide actionable strategies to bridge the gap between academia and industry in Sri Lanka's IT sector.

#### **2.1 Overview of the IT Sector in Sri Lanka**

Sri Lanka's IT sector has emerged as a vital pillar of its economy, contributing significantly to GDP and foreign exchange earnings. Over the past two decades, the sector has grown beyond traditional software development, encompassing fields such as data analytics, cybersecurity, business process outsourcing (BPO), and cloud solutions. This expansion is fuelled by technological advancements, including artificial intelligence (AI), blockchain, and the Internet of Things (IoT), which enable Sri Lankan firms to compete globally (World Bank, 2021). Recent market-pulse data reveal the demand for software engineers in Sri Lanka grew significantly in recent years, with cybersecurity and DevOps roles topping the shortage list ("Rising Demand for Software Engineers - Deloitte Survey 2024").

Government policies have played a critical role in driving the sector's growth. Incentives for foreign direct investment (FDI), digital infrastructure projects, and educational initiatives targeting IT skills have positioned Sri Lanka as a regional technology hub (Export Development Board of Sri Lanka, 2022). However, the dynamic nature of the global IT industry demands constant innovation and a workforce equipped with contemporary skills. The sector's evolution has highlighted a pressing need to align educational outcomes with industry expectations (Asian Development Bank, 2020).

While the IT sector has created numerous employment opportunities, concerns persist regarding skill gaps among graduates. Local IT firms often report challenges in finding talent proficient in emerging technologies or possessing essential soft skills (Wijewardena, 2019). Addressing these gaps is critical for sustaining the industry's competitiveness and ensuring its continued contribution to Sri Lanka's economic development.

## **2.2 Competency Frameworks in Higher Education**

Competency frameworks are essential tools for aligning educational outcomes with the evolving demands of industries. These frameworks define the knowledge, skills, and attributes graduates must acquire to succeed in their respective fields. In higher education, particularly in computing disciplines, competencies typically encompass technical skills like programming and data analysis, as well as soft skills such as critical thinking, teamwork, and adaptability (Tuning Project, 2009).

The Tuning Educational Structures initiative provides one of the most widely recognized frameworks for higher education competencies. It emphasizes generic competencies, such as communication and problem-solving, alongside subject-specific competencies tailored to each discipline (González & Wagenaar, 2003). Applying such frameworks in computing education ensures that curricula remain relevant amidst rapid technological advancements.

In Sri Lanka, higher education institutions face unique challenges in implementing competency-based frameworks. Limited industry engagement, outdated curricula, and resource constraints often hinder the development of industry-relevant programs (Perera & Ranasinghe, 2021). Moreover, the lack of standardized national competency profiles exacerbates these issues, creating disparities between institutions and the skills of their graduates.

Adopting robust competency frameworks in Sri Lankan higher education is critical for bridging the gap between academic training and industry needs. Such initiatives require collaboration among universities, industry stakeholders, and policymakers to develop dynamic, industry-informed curricula that prepare graduates for future challenges (Nanayakkara et al., 2020).

### **2.3 Competency Gaps in Computing Graduates**

Competency gaps among computing graduates have become a global concern, with significant implications for employability and industry productivity. These gaps arise when graduates lack the skills and knowledge required to meet industry demands. In the IT sector, technical deficiencies, such as inadequate coding proficiency, unfamiliarity with emerging technologies, and limited practical experience, are often cited. Additionally, employers frequently highlight a lack of soft skills, including communication, teamwork, and adaptability (Shah et al., 2020; Jackson, 2019).

Regional evidence echoes these concerns. A large-scale Malaysian employer survey identified communication, teamwork, and problem-solving as the most acute digital skill gaps—despite solid technical basics (Tee et al., 2024). Locally, a SLASSCOM audit of 37 Sri Lankan IT companies pinpointed critical shortages in cloud platforms, AI/analytics tools, and advanced English communication (SLASSCOM, 2024). In the Northern District, nearly 46% of computing graduates remained unemployed six months after graduation, largely due to inadequate practical training and weak English proficiency (Sutharshan & Jeyasumangala, 2025). In the Sri Lankan context, studies indicate that many computing graduates are underprepared for the dynamic nature of the IT industry. Research by Samarasinghe et al. (2021) found that while graduates possess foundational technical skills, they often lack expertise in advanced technologies like cloud computing and AI. Furthermore, the absence of industry-relevant project work and internships during their academic programs hampers their ability to transition seamlessly into professional roles (Wijesekara & Gunawardena, 2020).

The root causes of these gaps include outdated curricula, insufficient engagement between academia and industry, and a lack of focus on practical training. For instance, many universities in Sri Lanka prioritize theoretical knowledge over hands-on experience, leaving graduates ill-equipped for real-world challenges (Wijesinghe & Perera, 2022). Addressing these gaps requires a comprehensive approach, involving curriculum reform, enhanced industry-academia partnerships, and initiatives to integrate technical and soft skills development into educational programs (World Bank, 2021).

## **2.4 Role of Higher Education Institutions (HEIs)**

Higher education institutions (HEIs) play a pivotal role in shaping the competencies of graduates to meet industry demands. In technical fields like computing, this involves equipping students with a balanced combination of technical expertise, analytical thinking, and interpersonal skills. HEIs are tasked with creating curricula that reflect current and emerging industry trends while fostering an environment conducive to innovation and lifelong learning (Harvey, 2001; Knight & Yorke, 2004).

Sri Lankan HEIs face unique challenges in fulfilling this role. Many institutions continue to rely on traditional, theory-heavy curricula that do not adequately emphasize practical applications or industry-specific competencies. As a result, graduates often lack exposure to real-world problem-solving, modern programming languages, and collaborative project work, all of which are essential in the IT industry (Wijesinghe & Perera, 2022). Furthermore, limited resources and gaps in faculty training further hinder the ability of HEIs to provide cutting-edge education (Samarasinghe et al., 2021).

To address these challenges, HEIs must adopt a competency-based approach to education, integrating industry input into curriculum design and delivery. Initiatives such as internships, co-op programs, and industry-sponsored projects can help bridge the gap between academia and the workplace (Perera & Ranasinghe, 2021). Moreover, partnerships with IT firms can facilitate faculty development programs and the establishment of state-of-the-art laboratories, ensuring that educational offerings remain relevant in a rapidly evolving sector (Asian Development Bank, 2020).

## **2.5 Industry Expectations and Requirements**

A recent comparative study found that employers rated graduates' 'cloud literacy' about 30 percent lower than how graduates rated themselves, illustrating a significant perception gap between industry and academia (Lee & Xu, 2024). The IT industry's expectations of computing graduates are multifaceted, encompassing both technical proficiency and soft skills. Technical competencies, such as expertise in programming languages, software development, and data analysis, form the foundation of employability. However, industry professionals increasingly emphasize the importance of adaptability, problem-solving, and teamwork, which enable employees to thrive in dynamic environments (Shah et al., 2020; UNESCO, 2022).

In Sri Lanka, the fast-paced evolution of the IT sector has amplified these expectations. Employers seek graduates who are not only well-versed in emerging technologies like artificial intelligence and cloud computing but also capable of bridging technical solutions with business needs. According to Perera and Ranasinghe (2021), many companies value project management skills and the ability to communicate technical concepts effectively to diverse audiences.

Despite these expectations, gaps persist between industry needs and the skills graduates possess. Limited exposure to real-world applications and the lack of interdisciplinary training hinder graduates from meeting these demands (Wijesekara & Gunawardena, 2020). Strengthening industry-academia collaboration is critical to aligning educational outcomes with employer expectations. Strategies such as co-designed curricula, industry mentorship programs, and collaborative research initiatives can ensure that graduates are better prepared to contribute meaningfully to the workforce (Nanayakkara et al., 2020).

## **2.6 Collaborative Efforts Between Academia and Industry**

Collaboration between academia and industry is essential for aligning educational outcomes with workforce demands. Such partnerships provide a mechanism for higher education institutions (HEIs) to remain responsive to technological advancements and evolving industry expectations. Successful collaboration models often include co-designed curricula, internships, industry-sponsored research, and mentorship programs (Sutz, 2011; Yusuf & Nabeshima, 2007).

A successful co-op model implemented in North America reduced graduate onboarding time from six months to just two, demonstrating the impact of tightly coupled curricula and industry mentorships (Mills & Garcia, 2024). In Sri Lanka, partnerships between HEIs and the IT industry have yielded some positive outcomes. For instance, institutions like the University of Moratuwa and SLIIT have established internship programs with prominent IT firms, offering students practical exposure and enhancing their employability (Sri Lanka Association of Software and Services Companies [SLASSCOM], 2020). However, these collaborations are not yet widespread, and their impact remains limited due to inconsistencies in implementation and a lack of formalized structures (Nanayakkara, 2021).

Challenges to academia-industry collaboration include bureaucratic hurdles, mismatched priorities, and limited funding for joint initiatives. Addressing these issues requires a more structured approach, such as establishing industry advisory boards to guide curriculum

design and setting up collaborative research centers focused on solving real-world problems (UNESCO, 2015). Additionally, industry representatives can play a more active role in skill assessment and faculty development programs, ensuring that graduates are prepared for the dynamic IT landscape (SLASSCOM, 2020).

Strengthening academia-industry collaboration is not only crucial for enhancing graduate competencies but also for fostering innovation and competitiveness within Sri Lanka's IT sector. Such partnerships can bridge the gap between theoretical education and practical application, benefiting students, universities, and employers alike.

## **2.7 Government Policies and Interventions**

Government policies play a critical role in shaping the alignment of educational competencies with industry requirements. In Sri Lanka, the government has prioritized the IT sector as a key driver of economic growth, introducing various initiatives to support its development. These include investments in digital infrastructure, incentives for foreign direct investment (FDI), and policies aimed at expanding access to IT education (Export Development Board of Sri Lanka, 2020).

Despite these efforts, challenges persist in creating a seamless connection between academic training and industry demands. For instance, while government-led initiatives such as the "Smart Sri Lanka" program emphasize digital literacy and skills development, they often fall short in addressing advanced technical competencies required by the IT sector. Furthermore, there is limited focus on soft skills and interdisciplinary learning, which are increasingly valued by employers (Nanayakkara, 2021).

To enhance competency alignment, targeted interventions are necessary. One approach is the development of national competency frameworks that clearly define the skills and knowledge expected of graduates in specific fields. These frameworks can guide curriculum development, accreditation processes, and skills assessments (World Bank, 2021). Additionally, funding for faculty development and industry-academia collaborations can help institutions stay updated on emerging technologies (SLASSCOM, 2020).

Government policies must also address regional disparities in access to quality IT education and infrastructure. By supporting under-resourced institutions and promoting equitable access to training opportunities, policymakers can ensure that the benefits of competency alignment are distributed across the country. Such comprehensive measures

are essential for sustaining the growth and competitiveness of Sri Lanka's IT sector. Comparable policy-driven dynamics have emerged in Bangladesh, where national ICT incentives accelerated the demand for AI and e-commerce skills but inadvertently widened the skills gap due to outdated curricula and uneven access to quality education (Rahman & Akter, 2025).

## **2.8 Lifelong Learning and Continuous Skill Development**

Lifelong learning has become indispensable in the IT sector due to the rapid pace of technological advancements and evolving industry demands. Unlike static educational models, lifelong learning promotes continuous skill acquisition throughout a professional's career, enabling them to adapt to emerging technologies and market trends. Microcredentials, online certifications, and modular learning platforms are pivotal tools for fostering this approach, offering professionals the flexibility to upskill and reskill as needed (World Economic Forum, 2020).

In the Sri Lankan context, the emphasis on lifelong learning is still emerging. While some universities and private institutions have begun offering online courses and certification programs in areas such as data science, cybersecurity, and cloud computing, these efforts are not yet widespread or adequately integrated into broader educational frameworks (SLASSCOM, 2020). Furthermore, many professionals lack awareness of the importance of continuous learning, and the culture of upskilling is not uniformly embraced across the IT workforce (Nanayakkara, 2021).

Employers play a crucial role in fostering lifelong learning by providing opportunities for on-the-job training, workshops, and exposure to cutting-edge technologies. Similarly, universities can integrate lifelong learning principles into undergraduate programs by encouraging self-directed learning and offering flexible pathways for alumni to return for further education. Promoting lifelong learning at both institutional and individual levels will ensure that Sri Lanka's IT workforce remains competitive and capable of meeting future challenges. Comparable policy-driven dynamics have emerged in Bangladesh, where national ICT incentives accelerated the demand for AI and e-commerce skills but inadvertently widened the skills gap due to outdated curricula and uneven access to quality education (Rahman & Akter, 2025).

## **2.9 Challenges to Competency Alignment**

Achieving competency alignment between academic institutions and industry requirements presents several challenges. A significant obstacle is the disparity in the pace of evolution between academia and the IT industry. Curricula in many higher education institutions often lag behind industry developments due to bureaucratic processes, resource constraints, and insufficient engagement with industry stakeholders. Consequently, students may be trained in outdated technologies and practices, leaving them ill-prepared for modern workforce demands (Tertiary and Vocational Education Commission, 2021).

Another challenge lies in the diversity of skills required across different roles within the IT sector. For instance, the competencies expected of a software engineer differ significantly from those required of a data scientist or cybersecurity analyst. This variation makes it difficult for academic programs to comprehensively address all industry needs while maintaining general educational standards (Jayamanna, 2021).

Additionally, faculty development remains a critical issue. Many educators lack exposure to the latest technologies and industry practices, limiting their ability to deliver relevant and practical training. This gap is compounded by resource limitations in public institutions, where access to advanced tools and technologies is often restricted (de Silva & Amaradasa, 2022).

Resistance to change within both academia and industry further exacerbates these issues. Educational institutions may hesitate to adopt innovative teaching methods or update curricula, while employers may be reluctant to invest in collaborations or employee training programs. Addressing these challenges requires a concerted effort involving policy reforms, targeted funding, and stronger partnerships between academia and industry (Asian Development Bank, 2024).

## **2.10 Conclusion and Gaps in the Literature**

This literature review highlights the critical issue of competency misalignment between computing graduates and the expectations of the IT industry, particularly in Sri Lanka. While significant strides have been made to integrate industry needs into academic curricula, challenges remain in aligning educational outcomes with the fast-paced evolution of the IT sector. This misalignment impacts graduate employability and hinders the competitiveness of Sri Lanka's IT industry, which is vital for the nation's economic growth (World Bank, 2017).

The literature reveals several key factors contributing to competency gaps, including outdated curricula, insufficient practical training, and a lack of collaboration between academia and industry. Additionally, there is a need for a comprehensive national competency framework to guide curriculum design and address the diversity of skills required across different IT roles. Government policies, while supportive, are often not tailored enough to foster the necessary changes in educational institutions. Lifelong learning and continuous professional development are also critical to maintaining the relevance of the IT workforce, but their integration into Sri Lanka's educational system remains limited (International Labour Organization, 2016).

However, gaps in the literature still exist. While some studies have explored the mismatch between graduate skills and industry needs, few have examined the specific impact of government policies or the effectiveness of industry-academia collaborations in Sri Lanka. Additionally, research on lifelong learning within the Sri Lankan IT context is sparse, with few studies addressing how to embed continuous skill development into both academic curricula and professional practices. Further research in these areas is necessary to develop a comprehensive understanding of how to close the competency gap and ensure that graduates are adequately prepared for the challenges of the rapidly evolving IT sector (Perera & Ranasinghe, 2015; Sri Lanka Journal of Human Resource Management, 2023).

## CHAPTER 3

### MATERIALS AND METHODOLOGY

#### 3.1 Research Design

This research employs a qualitative approach to investigate the disparity between the existing competencies of Sri Lankan Computing Bachelor's Degree graduates and the expectations of the IT industry. A qualitative design is particularly suited to this study as it allows for an in-depth understanding of the nuanced experiences, perceptions, and expectations of both graduates and industry professionals. The flexibility inherent in qualitative research enables the exploration of themes and patterns that may not emerge through purely quantitative methods. By utilizing structured interviews, the study ensures a consistent framework for data collection while allowing room for participants to elaborate on their responses, thereby enriching the data with detailed insights.

The research design also incorporates a comparative element by engaging two distinct groups: recent graduates and industry professionals. This comparative framework is essential for capturing the dual perspectives necessary to identify and analyze the competency gaps. The structured interviews are designed to address specific research objectives, including the graduates' preparedness for industry roles, the challenges they face during their transition to the workforce, and the industry's perceptions of their readiness and skill gaps.

#### 3.2 Population and Sample

The target population for this study consists of two distinct groups: Sri Lankan Computing Bachelor's Degree graduates and Sri Lankan IT industry professionals. The graduates include individuals who have completed bachelor's degree programs in fields such as Software Engineering, Computer Science, Information Technology, and related disciplines within the past two years. These participants are drawn from a diverse array of universities across Sri Lanka, encompassing both public and private institutions. This includes well-established universities like the University of Colombo, University of Moratuwa, University of Peradeniya, and University of Kelaniya, as well as private institutions such as the Sri Lanka Institute of Information Technology (SLIIT), Informatics Institute of Technology (IIT), and Horizon Campus. Regional universities, including the University of Jaffna, Eastern University, University of Ruhuna, and South Eastern University, are also represented to ensure geographic diversity and capture a wide

range of perspectives. By including graduates from both urban and rural settings, the study provides a comprehensive view of the educational landscape in Sri Lanka.

The second group comprises IT industry professionals with substantial experience in the Sri Lankan IT sector. These professionals hold roles across various domains, including software development, quality assurance, project management, and human resource management. The inclusion of HR professionals is particularly significant, as they play a crucial role in recruitment and have direct insights into the skills and attributes sought in fresh graduates. The professionals are selected from a variety of organizational types, including multinational corporations, medium-sized enterprises, and startups. This ensures that the study captures a broad spectrum of industry expectations and standards.

The study involves a purposive sampling method, which is particularly appropriate for qualitative research as it allows the researcher to select participants who are most relevant to the research objectives. The sample size is 20-30 participants, with an even distribution of 10-15 participants from each group. This size is sufficient to achieve data saturation, where no new themes or insights emerge from additional data collection. For graduates, the sampling criteria include completion of a computing-related bachelor's degree within the last two years, representation from both public and private universities, and diversity in terms of geographic location, gender, socioeconomic background, and medium of instruction. For industry professionals, the criteria include at least five years of experience in the IT sector, representation of various functional areas within the industry, and diversity in educational background, organizational size, and geographic location.

The emphasis on diversity within the sample is critical to the study's reliability and validity. Including graduates from a range of universities ensures that the findings are not biased toward a specific type of institution. Similarly, incorporating industry professionals from diverse roles and organizations provides a comprehensive view of industry expectations. This approach enhances the generalizability of the findings within the context of Sri Lanka.

### **3.3 Data Collection Methods**

The primary method of data collection is structured interviews, conducted either face-to-face or online, depending on the participants' availability and preferences. Structured interviews are chosen for their ability to provide a consistent framework for all participants while allowing the researcher to delve deeper into specific topics as needed. This ensures both comparability of responses and the richness of data. Interview questions were strategically chosen to investigate the alignment of computing graduates' skills with

industry needs, focusing on technical proficiency, practical experience, and essential soft skills. Technical skill assessments were based on current industry demands in areas like programming languages and cloud computing (Foote Partners, 2024; Stack Overflow, 2024). The evaluation of practical experience aimed to identify gaps in applying theoretical knowledge, emphasizing the importance of internships and hands-on projects (Knouse et al., 1999). Questions also targeted soft skills such as communication, teamwork, and problem-solving, which are crucial for effective collaboration and workplace success (World Economic Forum, 2024). Furthermore, the questions are carefully designed to address key aspects of the research, such as the graduates' academic experiences, their perceived preparedness for industry roles, the challenges they face during their transition to the workforce, and their suggestions for curriculum improvements. For industry professionals, the questions focus on their expectations from fresh graduates, the perceived gaps in graduates' competencies, the relative importance of technical versus soft skills, and their recommendations for aligning academic curricula with industry needs.

To ensure the relevance and clarity of the interview questions, a pilot study is conducted with two participants from each group. The pilot study helps identify any ambiguities or irrelevant questions and allows for the refinement of the interview guide. Feedback from the pilot study is incorporated to improve the flow and comprehensiveness of the questions.

The interviews are conducted in a semi-formal setting to make participants comfortable and encourage open, honest responses. Each interview lasts approximately 45-60 minutes, providing ample time to explore the topics in depth while respecting the participants' time. With the participants' consent, the interviews are recorded to ensure accurate transcription and analysis. Detailed notes are also taken during the interviews to capture non-verbal cues and contextual information that may enhance the understanding of the responses.

The interview questions have been organized around key themes relevant to the research objectives. These themes include the technical skills gap, practical experience deficit, soft skills gap, academia-industry misalignment, emerging industry expectations, and recommendations for improvement.

Table 0.1 *Interview Questions for Industry Experts*

Theme	Questions
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<b>Technical Skills Gap</b>	<ul style="list-style-type: none"> <li>- Do graduates have sufficient technical knowledge when they join your organization?</li> <li>- Are they well-versed in programming, data structures, and algorithms?</li> <li>- Are they up to date with current technologies?</li> </ul>
<b>Practical Experience Deficit</b>	<ul style="list-style-type: none"> <li>- Have graduates done any industry projects or internships?</li> <li>- Do you think practical exposure during the degree program is enough?</li> <li>- Do graduates demonstrate hands-on experience in solving real-world problems?</li> </ul>
<b>Soft Skills Gap</b>	<ul style="list-style-type: none"> <li>- Do graduates possess good communication skills?</li> <li>- How well do they perform in team settings?</li> <li>- Are their problem-solving and critical thinking skills strong?</li> <li>- How do you rate their attitude and work ethic?</li> </ul>
<b>Academia-Industry Misalignment</b>	<ul style="list-style-type: none"> <li>- Do you think the university curriculum aligns with industry needs?</li> <li>- Are there outdated technologies or methods being taught?</li> <li>- Are graduates aware of how businesses operate in practice?</li> </ul>
<b>Emerging Industry Expectations</b>	<ul style="list-style-type: none"> <li>- What skills or knowledge areas do you expect graduates to have in the next 5 years?</li> <li>- Are AI, cybersecurity, or cloud computing relevant for new recruits?</li> <li>- How is the industry evolving, and are graduates ready?</li> </ul>
<b>Recommendations for Improvement</b>	<ul style="list-style-type: none"> <li>- What can universities do to bridge the skills gap?</li> <li>- Should universities collaborate more with</li> </ul>

	<p>industry?</p> <ul style="list-style-type: none"> <li>- What role can industry play in improving graduate readiness?</li> </ul>
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Table 0.2 *Interview Questions for Fresh Graduates*

<b>Theme</b>	<b>Questions</b>
<b>Technical Skills Gap</b>	<ul style="list-style-type: none"> <li>- What technical skills do you believe fresh graduates lack when entering your industry?</li> <li>- Are there specific tools, software, or methodologies you find graduates unfamiliar with?</li> <li>- Do graduates possess adequate knowledge in the core technical subjects relevant to your field?</li> </ul>
<b>Practical Experience Deficit</b>	<ul style="list-style-type: none"> <li>- How well do you think fresh graduates are prepared for real-world challenges in your company?</li> <li>- Do you find that graduates have sufficient hands-on experience or internship exposure?</li> <li>- Can you describe a situation where a lack of practical experience became a challenge for a new hire?</li> </ul>
<b>Soft Skills Gap</b>	<ul style="list-style-type: none"> <li>- In your experience, what soft skills are commonly missing in fresh graduates?</li> <li>- How important are communication, teamwork, and adaptability in your workplace?</li> <li>- Have you encountered issues where poor soft skills impacted performance or team dynamics?</li> </ul>

<b>Academia-Industry Misalignment</b>	<ul style="list-style-type: none"> <li>- Do you feel that current university curricula reflect the realities of the industry?</li> <li>- Are there gaps between what is taught in academia and what is expected in your company?</li> <li>- What could universities do to better align their programs with industry needs?</li> </ul>
<b>Emerging Industry Expectations</b>	<ul style="list-style-type: none"> <li>- How have your expectations of new employees changed over the past few years?</li> <li>- What new skills or knowledge areas do you expect from future graduates?</li> <li>- Are there emerging trends or technologies that graduates should be familiar with?</li> </ul>
<b>Recommendations for Improvement</b>	<ul style="list-style-type: none"> <li>- What recommendations would you give universities to better prepare students?</li> <li>- What advice would you give students to enhance their employability?</li> <li>- Are there any industry-academia collaborations you think could bridge the current gaps?</li> </ul>

### 3.4 Ethical Considerations

This study adheres to stringent ethical standards to protect the rights and well-being of participants. Before participation, all individuals are provided with an information sheet detailing the purpose of the study, their role, and how the data will be used. Written informed consent is obtained from each participant, ensuring that they understand their rights, including the right to withdraw from the study at any time without any negative consequences.

To maintain confidentiality, participants' identities are anonymized in all records and reports. Interview recordings and transcripts are securely stored on password-protected devices, accessible only to the research team. Data is used solely for the purposes of this study and will not be shared with third parties. These measures ensure compliance with ethical guidelines and foster trust between the researcher and participants.

### 3.5 Data Analysis

The data collected through interviews is analyzed using thematic analysis, a qualitative method that allows for the identification and interpretation of patterns and themes within the data. Thematic analysis is chosen for its flexibility and suitability for exploratory research. The process begins with the transcription of interview recordings to ensure an accurate and detailed representation of the participants' responses. Transcripts are then reviewed multiple times to familiarize the researcher with the data.

This study employs thematic analysis to identify key themes emerging from interviews with industry experts. These themes include the technical skills gap, practical experience deficit, soft skills gap, academia-industry misalignment, emerging industry expectations, and recommendations for improvement. These themes provide a structured framework for understanding the disparities between the existing competencies of Sri Lankan computing bachelor's degree graduates and the expectations of the IT industry, shedding light on areas needing attention to enhance graduate employability and industry competitiveness.

To ensure the reliability of the analysis, a subset of transcripts is reviewed by a second researcher. This peer review process helps verify the consistency and accuracy of the coding and thematic development. Any discrepancies are discussed and resolved through consensus. The final themes are synthesized into a coherent narrative that addresses the research objectives and provides actionable insights.

### **3.6 Reliability and Validity**

The reliability and validity of the study are ensured through several measures. The structured interview guide provides consistency in data collection, while the pilot study ensures that the questions are clear and relevant. Purposive sampling ensures that participants are directly relevant to the research question, enhancing the validity of the findings. Triangulation is achieved by comparing data from graduates and industry professionals, allowing for the identification of overlapping and contrasting perspectives.

The thematic analysis process is rigorously documented to enhance transparency and replicability. Peer review of the coding and thematic development further strengthens the reliability of the findings. These measures collectively ensure that the study produces credible and trustworthy results.

### **3.7 Limitations**

While the study is designed to minimize biases and maximize the relevance of the findings, certain limitations are acknowledged. The sample size, while sufficient for qualitative research, may not fully capture the diversity of the Sri Lankan IT industry and

academic institutions. The reliance on purposive sampling may introduce selection bias, although efforts are made to ensure diversity within the sample. Additionally, the use of self-reported data may be influenced by participants' subjective perceptions and biases.

Despite these limitations, the study's robust design and rigorous methodology ensure that the findings provide valuable insights into the competency gap between Sri Lankan Computing Bachelor's Degree graduates and industry expectations.

## CHAPTER 4

### FINDINGS

The interviews with industry professionals and recent computing graduates revealed a clear pattern of competency gaps. Both groups agreed that graduates generally possess solid theoretical knowledge (e.g. in programming and algorithms) but often lack practical application skills. One senior industry manager observed that “while many graduates have a good theoretical foundation, they often lack practical experience” noting a gap in familiarity with real-world tools and practices. Graduates themselves acknowledged this: for example, one commented that his degree gave him strong coding abilities “in terms of technical knowledge,” yet he “felt unprepared for real-world application, especially when it came to collaborative and agile workflows.” Data saturation was considered achieved when no new themes or insights emerged from the interviews. This indicated that the range of views and experiences relevant to the research questions had been sufficiently captured. Below is the overview of the findings from fresh graduates and industry experts.

#### 4.1 Overview of Findings

##### 4.1.1 Fresh Graduate’s Perspective

The transition from academic learning to industry practice revealed important insights when speaking to fresh graduates. Participant 1, a Computer Science graduate from the University of Colombo, reflected,

“I graduated six months ago and now work as a junior developer at a fintech company. My degree gave me a solid theoretical foundation, but adapting to the fast-paced industry environment was challenging.” *He further shared*, “In terms of technical knowledge, I felt prepared, but when it came to working with agile workflows and collaboration tools, I struggled initially.”

Participant 2, who graduated from SLIIT in Software Engineering, also emphasized the imbalance between technical readiness and workplace adaptability.

“My degree trained me well for coding challenges,” *he stated*, “but I was not equipped to understand business contexts or to communicate effectively with clients.”

His experiences resonated with others, as many graduates found that while technical concepts like programming and algorithms were taught rigorously, the broader professional competencies were often overlooked.

Participant 3, a systems analyst and graduate from the University of Moratuwa, described a similar journey:

“The theoretical knowledge I gained was excellent, but there was a noticeable gap when it came to practical skills and understanding industry workflows. I had to quickly familiarize myself with tools like Git and agile development methodologies on the job.”

His comments underline the critical importance of practical training that mirrors industry expectations.

Several participants also discussed how their academic programs inadequately addressed emerging technologies. Participant 4, a graduate from the University of Peradeniya, mentioned,

“We learned a lot about algorithms and data structures, but there was very little exposure to version control systems, DevOps practices, or project management. I had to learn containerization technologies like Docker after joining the workforce.”

The shortage of soft skills development was another recurrent theme. Participant 5, a Software Engineering graduate from South Eastern University, candidly shared,

“Problem-solving was emphasized through coursework, but communication and teamwork weren’t given much attention. When I started working as a QA engineer, I realized that being technically strong was not enough — working effectively in teams and managing client expectations mattered just as much.”

Throughout these interviews, it became clear that while universities provide strong theoretical foundations, many graduates feel underprepared for real-world industry demands. As Participant 1 summarized,

“The transition was tough but rewarding. Building both technical and soft skills during university would have made it smoother.”

These reflections collectively highlight a pressing need for educational programs to integrate more practical, collaborative, and industry-relevant experiences into computing curricula.

#### **4.1.2 Industry Expert’s Perspective**

The views of industry professionals further illuminated the gaps between academic preparation and industry expectations. Participant 1, a Senior IT Manager at a multinational firm, emphasized the importance of practical competency, stating,

“Competency in the IT industry is not just about having technical knowledge; it’s about applying that knowledge to real-world challenges. We need graduates who can solve problems, communicate effectively, and adapt quickly.”

He noted that although many graduates displayed strong theoretical understanding, they often lacked experience with tools and workflows integral to modern workplaces.

Participant 2, a Chief Technology Officer at a mid-sized IT consulting company, highlighted similar concerns.

“Technical skills like coding and algorithms are fundamental,” *he asserted*, “but adaptability and critical thinking are just as important. Many graduates we meet are not prepared to deal with the fast-evolving technology landscape.”

He further stressed the value of experience with cloud platforms, Agile methodologies, and DevOps practices, areas that are increasingly non-negotiable in contemporary IT roles.

The lack of real-world experience was a recurring issue. Participant 3, a Lead Developer at a local tech startup, expressed frustration that,

“Most graduates have good foundational knowledge, but very few have actually applied it in real-world settings. Those who participated in hackathons or open-source projects stood out immediately because they knew how to handle practical challenges.”

He added that familiarity with tools like Git, continuous integration systems, and collaborative development environments is crucial from day one.

Soft skills were equally emphasized by the experts. Participant 4, a Software Engineer specializing in cloud applications, observed,

“In the real-world, it’s not enough to just be technically strong. We need people who can work in teams, communicate across departments, and manage their time effectively.”

His comment mirrored the earlier remarks from fresh graduates, confirming that technical prowess alone cannot guarantee success.

Industry professionals also pointed to the urgency of aligning academic curricula with current and emerging technologies. Participant 1 suggested that,

“Universities should place more focus on cloud computing, cybersecurity, and DevOps practices. Students must graduate already comfortable with these environments if they are to thrive in the industry.” *Participant 2 agreed, recommending that,* “Institutions should create project-based courses in partnership with industry, ensuring that students encounter real-world challenges before they graduate.”

The collective message from industry experts was clear: while theoretical knowledge remains important, universities must evolve faster to meet practical industry demands. Their reflections reinforce the concerns raised by graduates themselves, highlighting a shared understanding that stronger experiential learning, industry exposure, and practical tool usage are critical for better preparing students for employment.

## **4.2 Findings based on Themes**

Six key themes were explored, as mentioned: deficiencies in technical and practical skills, a lack of hands-on experience, weaknesses in soft skills, misalignment between curricula and industry needs, evolving technology expectations, and recommendations for education-industry collaboration. These themes are elaborated below, supported by evidence from the interview transcripts.

### **4.2.1 Technical Skills Gap**

A dominant finding was that graduates' technical skillsets are often outdated. Interviewees reported that many new graduates lack proficiency with current tools and platforms. For instance, several graduates noted they had strong programming and algorithmic knowledge but no experience with industry-standard tools such as version control or collaborative development environments. As one graduate put it, he felt confident in his coding but "lacked experience with industry-standard tools like Git and version control systems." Industry experts echoed this: they frequently pointed out that while graduates know theory, they struggle with real-world software environments. One interviewer warned that newcomers often have to learn even fundamental workflows on the job. In particular, the most significant technology gaps were identified in cloud computing and modern development methodologies (e.g. Agile, DevOps). Several interviewees predicted that knowledge of emerging technologies is increasingly expected: "Knowledge of emerging technologies such as AI, machine learning, cloud computing, and cybersecurity is increasingly expected," said a senior IT manager. In practice, few curricula cover these topics in depth, leaving graduates underprepared for many current roles. In short, the technical gap concerns not just basic coding skills (which are generally strong) but especially up-to-date tools and platforms that employers require.

### **4.2.2 Practical Experience Deficit**

Closely related to the technical gap is a lack of hands-on experience. Nearly all participants agreed that graduates have limited real-world practice. Most had not completed significant internships or industry projects during their studies. Industry professionals noted that new hires often cannot perform even basic tasks without additional training. One graduate reflected on this: while his theoretical knowledge was solid, he had to learn "agile methodologies and [tools like] JIRA and Git ... on the job," indicating a steep learning curve. Another mentioned that internships or project-based

courses would have eased the transition: “Including more group projects and industry internships would have provided valuable practical experience,” observed a recent graduate. Echoing this, many experts confirmed that interns or students who engaged in practical projects were far better prepared than those with purely academic backgrounds. Employers emphasized that internship opportunities and industry-led workshops give students the chance to apply concepts to real problems. For example, one industry respondent noted that those who had done internships “*tend to excel, as they have hands-on experience with modern tools and development processes,*” whereas others “struggle in practical settings.” In sum, the lack of co-op placements and project courses was a clear deficit: hands-on training needs to be integrated into degree programs to bridge this gap.

### **4.3 Soft Skills and Professional Attributes**

Beyond technical knowledge, soft skills emerged as a consistent weak point. Both graduates and employers pointed out that communication, teamwork, and professional attitudes are underdeveloped. Graduates admitted that soft skills were minimally addressed in coursework. One commented, “soft skills were minimally addressed...communication and teamwork...were skills I had to develop quickly in my current role.” Industry experts likewise stressed the importance of interpersonal competencies: they repeatedly mentioned that teamwork and effective communication in agile settings are critical for success. One expert summarized, “Graduates need to have strong teamwork skills... [and] effective communication... The ability to work in agile teams is also essential.” Employers observed that many new hires lacked confidence in group discussions or struggled to give and receive feedback, which sometimes hindered project progress. Time management, adaptability, and professional work ethic were also cited as areas needing improvement. In response, several participants recommended embedding more collaborative activities (such as team-based assignments, presentations, and internships) in the curriculum to build these capabilities.

### **4.4 Curriculum Alignment and Industry Integration**

A prominent theme was a misalignment between academic curricula and industry requirements. Interviewees noted that many university programs remain outdated and overly theoretical. For example, one summary of the interviews stated that there is “a notable disconnect between what is taught and industry needs. Curricula are often outdated and theory-heavy, lacking real-time case studies or application-based modules.” In practice, students study legacy technologies and lengthy mathematical theory, with little exposure to the current industry environment. Several participants suggested that industry professionals should be more involved in curriculum design. They recommended

incorporating guest lectures by practitioners, co-developing coursework with companies, and using live case studies from local firms. These changes could ensure that academic content reflects the tools, languages, and challenges of today's IT sector. In effect, bringing industry into the classroom — through partnerships, mentorships, and regular curriculum reviews — was seen as crucial for narrowing the academic–industry gap.

#### **4.5 Emerging Industry Expectations**

Interviewees also discussed future-oriented skills that graduates must acquire. There was consensus that rapid technological change requires graduates to learn continuously. In particular, employers highlighted areas such as cloud computing, cybersecurity, data analytics, and DevOps practices as increasingly important. One manager stressed that familiarity with cloud platforms and DevOps tools will be expected of new graduates. Similarly, other experts mentioned emerging areas like containerization (Docker, Kubernetes), microservices architecture, and artificial intelligence as “becoming critical.” In short, the industry expects new hires to be adaptable learners who already understand or quickly pick up these advanced domains. This implies that curricula should start introducing emerging technologies at an earlier stage, and encourage students to stay current with trends.

#### **4.6 Recommendations for Improvement**

Based on the findings, participants proposed several strategies to bridge the competency gaps:

##### ***Update and Enrich the Curriculum***

Include more project-based and experiential learning. For example, degree programs should integrate group projects, coding competitions, and practical labs that mimic real-world software development. One industry summary explicitly advised universities to “incorporate project-based learning, update content frequently, and promote internships.” These measures would help graduates apply theoretical concepts in context.

##### ***Strengthen Industry–Academia Collaboration***

Foster partnerships with companies through internships, mentorships, workshops, and co-op programs. Many interviewees argued that “internship opportunities and industry-led workshops would provide graduates with practical experience” that cannot be replicated in classrooms. Guest lectures, adjunct teaching by professionals, and joint curriculum planning were also recommended as ways to keep courses aligned with industry needs.

##### ***Emphasize Practical Skills and Tools***

Focus more on current development practices and technologies. Curriculum content should cover software engineering tools (version control, CI/CD), agile methods, and modern platforms (cloud services, DevOps tools). One expert explicitly suggested teaching “full-stack development, version control systems, and agile methodologies... [and] exposure to cloud platforms and DevOps tools.” By doing so, universities can ensure graduates are fluent in the tools they will encounter.

### ***Enhance Soft Skills Training***

Systematically develop communication, teamwork, and professional skills. This can be achieved by embedding group work, presentations, and industry projects into courses. Participants noted that students should learn to work in teams and communicate clearly before entering the workplace. As one graduate advised peers, “*seek internships and participate in hackathons to gain practical experience.*” Similar initiatives (e.g. peer programming, design projects) would cultivate both soft and technical abilities.

## **4.7 Summary of Key Findings**

In summary, the findings paint a comprehensive picture of the competency misalignment. Graduates enter the workforce with strong theoretical and analytical foundations but typically lack hands-on experience and fluency with current tools. Both graduates and industry experts identified critical gaps in technical skills (especially cloud and development tools), practical experience, and soft skills. The interviews underscore the urgent need for curriculum reform: academic programs must become more application-oriented and closely linked to industry. Participants consistently recommended expanding internship opportunities, integrating emerging technology topics, and building stronger partnerships with employers. Addressing these recommendations is expected to produce graduates who are better prepared for real-world IT roles, thereby improving employability and meeting the evolving needs of Sri Lanka’s computing industry.

## CHAPTER 5

### DISCUSSION

The growing significance of the Information Technology (IT) sector in Sri Lanka highlights the critical need for a skilled workforce capable of driving innovation and meeting global market demands. However, the disparity between the competencies of computing graduates and the expectations of the IT industry remains a pressing issue, creating challenges for employability, industry growth, and national development. This study sought to explore this gap by analyzing the perspectives of both fresh graduates and industry experts, offering valuable insights into the root causes of competency misalignment and potential strategies for bridging it.

Competency alignment is fundamental to higher education's role in producing graduates who are not only technically proficient but also adaptable and prepared for the dynamic challenges of the modern IT workplace. It encompasses both hard skills, such as programming and software development, and soft skills, including communication, teamwork, and problem-solving. For Sri Lanka's IT industry, which thrives on innovation and global competitiveness, the lack of alignment between academic training and industry requirements poses a significant barrier to its continued growth. This issue is particularly relevant in the context of the rapid technological advancements that have redefined the skillsets required by IT professionals worldwide (World Economic Forum, 2020; Jayasundara et al., 2021).

This study's findings provide a comprehensive understanding of the competencies deemed essential by industry experts, juxtaposed with the self-perceived preparedness of recent graduates. While graduates reported confidence in their foundational knowledge, both groups highlighted critical gaps in practical experience, exposure to industry-standard tools, and essential soft skills. These gaps underscore the limitations of existing academic programs in adapting to the fast-evolving needs of the IT industry (Tertiary and Vocational Education Commission, 2021).

By integrating qualitative insights from interviews with industry professionals and fresh graduates, this study provides a nuanced perspective on the multifaceted nature of competency alignment. It not only highlights the urgent need for curriculum reform and enhanced industry-academia partnerships but also advocates for a culture of lifelong learning to ensure that graduates remain relevant in an ever-changing technological landscape (International Labour Organization, 2016; Suarta et al., 2020). This discussion

lays the groundwork for informed decision-making and strategic interventions that can help bridge the competency gap, thereby enhancing graduate employability and supporting the sustainable growth of Sri Lanka's IT sector.

In the subsequent sections, the discussion will delve deeper into the study's thematic analysis of the interviews, drawing connections to existing research and proposing recommendations for various stakeholders. By addressing the nuances of competency alignment and its implications, this section aims to contribute to the ongoing discourse on education-industry collaboration and its role in fostering a skilled and resilient workforce.

## **5.1 Thematic Analysis**

This section discusses the key findings from the thematic analysis of the interviews with industry experts, linking the results to existing literature and highlighting their implications for practice and policy.

### **5.1.1 Technical Skills Gap**

The analysis reveals a significant gap between graduates' theoretical knowledge and the practical skills required by the IT industry. While graduates often have foundational programming knowledge, they lack proficiency in industry-standard languages like Java, Python, and C++, as well as familiarity with tools such as version control systems (e.g., Git), CI/CD pipelines, and cloud platforms like AWS or Azure. This aligns with findings by CompTIA, which highlight that emerging technologies such as process automation and virtualization are areas where many IT professionals fall short due to inadequate training resources (King, 2012).

Additionally, the demand for expertise in emerging technologies like AI, machine learning, cybersecurity, and DevOps is growing but remains unmet by current curricula. This mismatch suggests that universities should integrate industry-recognized certifications into their programs to ensure graduates meet specific benchmarks. Similar recommendations have been made in studies emphasizing that technical skills are critical for employability and career advancement in IT (Patacsil and Tablatin, 2017).

### **5.1.2 Practical Experience Deficit**

A recurring theme is the lack of hands-on experience among graduates due to limited internships, project-based learning opportunities, and industry exposure during academic

programs. Industry experts noted that graduates struggle to apply theoretical knowledge in real-world settings, which negatively impacts their workplace readiness. This finding is consistent with research from Nigeria, where practical skills are identified as essential for bridging the gap between academia and industry (Scholar, 2024).

Internships and co-op programs have been highlighted globally as vital mechanisms for enhancing graduate employability. For example, a study in the Philippines found that internships significantly improved students' understanding of teamwork and communication while exposing them to real-world IT environments (Patacsil and Tablatin, 2017). Universities should therefore prioritize practical training through internships and industry-linked projects.

### **5.1.3 Soft Skills Gap**

The analysis underscores deficits in communication, teamwork, problem-solving, and adaptability among graduates. These soft skills are crucial for articulating technical concepts to non-technical stakeholders and collaborating effectively within diverse teams. Industry experts emphasized that soft skills are equally important as technical skills for IT professionals. This is supported by research from India and the Philippines, which highlights that communication and interpersonal skills are critical but often underdeveloped among graduates (Mishra, 2017).

To address this gap, universities could incorporate group projects, presentations, and case studies into their curricula. Such activities foster collaboration and improve students' ability to work in team settings while enhancing their problem-solving capabilities.

### **5.1.4 Academia-Industry Misalignment**

The lack of alignment between academic curricula and industry needs emerged as a major concern. Curricula often fail to reflect current trends or involve industry stakeholders in their design. This misalignment leads to outdated teaching methods that do not prepare students for modern IT roles. Studies from India have similarly identified a "definite disconnect" between graduate skills and market needs, with many graduates deemed unemployable due to outdated curricula.

Closer collaboration between academia and industry is essential to bridge this gap. Universities should involve industry experts in curriculum design and offer real-world case studies or practical training opportunities. Empirical research has shown that such

collaborations improve graduate readiness for competitive job markets (Mahalingam, 2024; Safsouf, Mansouri and Poirier, 2020).

### **5.1.5 Emerging Industry Expectations**

The Emerging Industry Expectations theme underscores the growing demand for graduates to be proficient in emerging technologies such as artificial intelligence (AI), machine learning (ML), cloud computing, and cybersecurity. Employers now expect candidates to have a foundational understanding of AI and ML concepts, familiarity with cloud platforms like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud, and a basic grasp of cybersecurity best practices. Integrating these technologies into university curricula is essential to prepare students for the evolving IT landscape.

Recent research emphasizes the importance of incorporating AI and ML into cybersecurity education to address modern security challenges effectively. A study highlights that integrating AI into cybersecurity curricula enhances students' ability to tackle contemporary threats, suggesting a methodology for embedding AI and ML techniques into cybersecurity education. Similarly, another study explores the integration of AI and cloud computing in computer science education, aiming to enhance the learning experience and prepare students for the modern computing landscape (Pusey *et al.*, 2024).

Furthermore, the integration of AI technologies such as ML, deep learning, natural language processing, and predictive analytics in cybersecurity education is explored in another study, discussing how AI addresses key challenges in modern threats and its applications in areas like malware analysis and fraud detection. These studies collectively highlight the critical need for academic programs to evolve in line with industry expectations, ensuring that graduates are well-equipped to navigate and contribute to the rapidly advancing technological landscape (Swamy *et al.*, 2024).

### **5.1.6 Recommendations for Improvement**

The theme of Recommendations for Improvement encompasses suggestions from industry experts on how to address the identified gaps and enhance graduate employability. These include to have Universities focus on hands-on experience, real-world problem-solving, and project-based learning, foster a mindset of continuous learning and adaptability among graduates, and for there to be closer collaboration between academia and industry. Implementing these recommendations requires a multi-faceted approach involving universities, industry stakeholders, and policymakers. As the Lead Developer mentioned, "More emphasis should be placed on mobile development and real-world applications.

Universities should incorporate internships, hands-on projects, and exposure to industry-standard tools to ensure that graduates are prepared for immediate work."

By addressing the identified gaps and implementing these recommendations, Sri Lanka can enhance graduate employability, reduce youth unemployment, and foster a globally competitive IT sector.

## **5.2 Synthesis of Key Findings**

This section examines the critical insights emerging from the qualitative analysis of industry experts and fresh graduates, comparing these findings with existing literature. It provides an integrated understanding of the identified competency gaps and their implications for Sri Lanka's IT sector.

### **5.2.1 Disparities in Technical Competencies**

One of the most prominent findings of this study is the gap in technical competencies between what is taught in academic programs and what is expected by the industry. Industry experts frequently emphasized the importance of practical proficiency in programming languages, familiarity with industry-standard tools such as Git, and exposure to emerging technologies like cloud computing and DevOps practices. While graduates reported confidence in their foundational technical knowledge, many acknowledged their lack of familiarity with these tools and practices upon entering the workforce.

For example, one participant from the industry highlighted, "Graduates often possess theoretical knowledge but struggle with applying it to real-world problems, especially using industry-standard tools." This observation aligns with similar studies that underscore the importance of integrating practical, hands-on learning opportunities into computing curricula (Eckerdal *et al.*, 2006). The lack of exposure to industry-standard tools not only prolongs the learning curve for new employees but also places a burden on employers to provide additional training. This highlights the urgent need for curriculum reforms to incorporate practical applications and up-to-date industry tools into academic programs (Armarego, 2002).

Emerging technologies such as artificial intelligence, cloud computing, and cybersecurity were also identified as critical areas where graduates fall short. Industry experts stressed the need for universities to provide training in these fields to prepare students for the dynamic IT landscape (National Academies of Sciences, Engineering, and Medicine, 2018). However, as noted by several participants, these technologies are either

inadequately covered or completely absent from many undergraduate programs. This discrepancy underscores a significant area for improvement in higher education.

### **5.2.2 Soft Skills and Interpersonal Competencies**

In addition to technical skills, soft skills were identified as a critical area of concern. Communication, teamwork, and adaptability emerged as the most significant gaps reported by both industry professionals and graduates. Many industry experts noted that while graduates are often technically proficient, they lack the ability to work effectively in teams or communicate technical concepts to non-technical stakeholders. This is particularly problematic in roles requiring client interaction or collaboration across multidisciplinary teams.

A graduate interviewee remarked, “Teamwork was not a focus in my degree program, and I had to learn these skills on the job.” This finding aligns with existing literature that highlights the increasing importance of soft skills in the IT sector (Casner-Lotto & Barrington, 2006). As the industry becomes more client-facing and collaborative, the ability to communicate effectively and work in diverse teams is essential for success.

Moreover, adaptability—the ability to learn and apply new skills quickly—was repeatedly emphasized as a critical competency in the fast-evolving IT industry. However, this skill is often overlooked in traditional academic settings, which tend to prioritize theoretical knowledge over practical problem-solving. Addressing this gap requires a shift in teaching methodologies to emphasize experiential learning, such as group projects, case studies, and real-world simulations.

### **5.2.3 The Role of Practical Experience**

Both graduates and industry experts highlighted the importance of practical experience in bridging the competency gap. Graduates with internship experience or participation in extracurricular projects reported a smoother transition into the workforce compared to those who relied solely on academic training. Industry experts corroborated this finding, noting that graduates with hands-on experience are better equipped to meet workplace demands and adapt to new challenges.

For instance, a participant from the industry stated, “Internships and real-world projects should be a mandatory part of the curriculum. They provide invaluable exposure to the tools and practices we use daily.” Despite the clear benefits of practical experience, many

academic programs in Sri Lanka do not prioritize internships or industry collaborations, resulting in a significant gap in graduate readiness.

This aligns with global best practices, where universities partner with industry stakeholders to offer co-op programs, internships, and project-based learning (Smith et al., 2013). Implementing such initiatives in Sri Lankan institutions could significantly enhance graduate employability by providing students with real-world exposure and opportunities to develop both technical and soft skills.

#### **5.2.4 Alignment with Industry Expectations**

The findings also reveal a lack of alignment between academic training and industry expectations. Industry experts highlighted the need for universities to stay updated on emerging trends and incorporate them into their curricula. However, the slow pace of curriculum updates and bureaucratic hurdles often result in a disconnect between what is taught and what is required in the workplace.

Graduates echoed this sentiment, with one stating, “The skills I learned in university were useful, but I had to take additional certifications to meet industry demands.” This highlights the importance of continuous collaboration between academia and industry to ensure that curricula remain relevant and responsive to changing technological trends (Little, 2010).

#### **5.2.5 Broader Implications**

The competency gaps identified in this study have broader implications for Sri Lanka’s IT sector and its economy. Underemployment and skill underutilization not only impact individual career trajectories but also hinder the industry’s ability to innovate and compete globally. Moreover, the additional training required by employers to bridge these gaps represents a significant cost to businesses, potentially deterring investment in the local workforce (TVEC, 2021).

Addressing these gaps is critical for ensuring the sustainable growth of Sri Lanka’s IT sector. By aligning academic training with industry needs, universities can produce graduates who are better equipped to contribute to the workforce, thereby enhancing the sector’s global competitiveness and supporting broader economic development (ADB, 2021).

### **5.3 Implications for Different Stakeholders**

The competency gaps identified in this study present challenges and opportunities for various stakeholders in Sri Lanka's education and IT ecosystem. Addressing these gaps requires a coordinated effort from higher education institutions (HEIs), industry leaders, policymakers, and students themselves. This section explores the implications for each group and offers actionable recommendations to enhance competency alignment.

### **5.3.1 Higher Education Institutions (HEIs)**

Higher education institutions play a pivotal role in shaping the competencies of graduates to meet industry demands. The findings of this study indicate that while HEIs in Sri Lanka provide a solid theoretical foundation, there is a pressing need to incorporate practical, hands-on learning opportunities into their curricula. Internships, co-op programs, and industry-sponsored projects should be integral components of academic programs to bridge the gap between theory and practice (World Bank, 2016).

One of the primary challenges faced by HEIs is the slow pace of curriculum updates. In a rapidly evolving field like IT, curricula must be dynamic and responsive to emerging trends. Establishing advisory boards comprising industry professionals can help ensure that academic programs remain relevant. Additionally, HEIs should invest in faculty development programs to equip educators with the knowledge and skills needed to teach cutting-edge technologies (ADB, 2021).

HEIs must also prioritize the development of soft skills among students. Communication, teamwork, and adaptability are critical for success in the IT industry, yet these skills are often overlooked in traditional academic settings. Integrating group projects, case studies, and real-world simulations into coursework can provide students with opportunities to develop these competencies. Furthermore, partnerships with industry leaders can facilitate workshops and training sessions focused on soft skills development (SLASSCOM, 2024).

### **5.3.2 Industry Leaders**

Industry leaders have a significant role to play in bridging the competency gap. By collaborating with HEIs, they can provide valuable insights into current and future skill requirements. Industry-sponsored internships, co-op programs, and mentorship initiatives can offer students practical experience and exposure to real-world challenges (Sunday Times, 2021).

Employers must also invest in continuous training and professional development for their workforce. While it is essential for academic programs to align with industry needs, the

dynamic nature of the IT sector necessitates ongoing learning. Industry leaders can support this by providing on-the-job training, funding certifications, and encouraging employees to pursue lifelong learning opportunities (SLASSCOM, 2024).

Moreover, industry leaders should actively engage in curriculum development processes. By participating in advisory boards and offering feedback on academic programs, they can help ensure that graduates are equipped with the skills needed to succeed in the workplace. Collaborative research initiatives between academia and industry can also drive innovation and create opportunities for students to work on cutting-edge projects (Times Higher Education, 2023).

### **5.3.3 Policymakers**

Government policies play a crucial role in shaping the alignment between education and industry requirements. Policymakers in Sri Lanka must prioritize the development of a national competency framework that clearly defines the skills and knowledge expected of graduates in the IT sector. This framework can serve as a benchmark for curriculum development, accreditation, and skills assessments (ILO, 2021).

Investing in digital infrastructure and resources for HEIs is another critical area for policymakers. Many institutions in Sri Lanka face resource constraints that hinder their ability to provide state-of-the-art education. Government funding for labs, equipment, and faculty development programs can help address these challenges and enhance the quality of education (ADB, 2021).

Policymakers should also incentivize industry-academia collaborations through grants, tax benefits, or recognition programs. Encouraging partnerships between HEIs and IT firms can foster a culture of innovation and ensure that academic programs remain aligned with industry needs. Additionally, policies that promote lifelong learning, such as subsidies for certifications and online courses, can help professionals stay relevant in a rapidly changing field (IPS, 2017).

### **5.3.4 Students and Graduates**

Students and graduates are key stakeholders in addressing competency gaps. While academic programs provide a foundation, it is ultimately the responsibility of individuals to take ownership of their learning and career development. Students should actively seek internships, participate in hackathons, and pursue certifications in emerging technologies to enhance their practical skills (SLASSCOM, 2024).

Graduates entering the workforce must be proactive in identifying and addressing their skill gaps. Engaging in self-directed learning, seeking mentorship, and participating in professional networks can provide valuable opportunities for growth. Additionally, cultivating soft skills such as communication and teamwork is essential for success in the collaborative environments typical of the IT industry (Jayamanna, 2024).

### **5.3.5 Collaborative Efforts**

Collaboration among stakeholders is essential for bridging the competency gaps. By fostering partnerships between HEIs, industry leaders, and policymakers, Sri Lanka can create a more dynamic and responsive education system that meets the needs of its growing IT sector. Joint efforts in curriculum development, research, and professional development can ensure that graduates are equipped with the skills and knowledge needed to drive innovation and contribute to the country's economic growth (ADB, 2021; SLASSCOM, 2024).

## **5.4 Policy Recommendations**

Addressing the competency gaps identified in this study requires actionable and comprehensive strategies that target the root causes of misalignment between academic preparation and industry expectations. This section outlines targeted recommendations for higher education institutions (HEIs), industry stakeholders, and policymakers to create a skilled and future-ready IT workforce in Sri Lanka.

### **5.4.1 Curriculum Reform and Modernization**

One of the most pressing needs is the modernization of university curricula to ensure alignment with the dynamic demands of the IT industry. Academic programs should prioritize emerging technologies such as artificial intelligence (AI), machine learning (ML), cloud computing, DevOps, and cybersecurity (SLASSCOM, 2024). Universities must integrate practical knowledge into course design by incorporating industry-standard tools, including Git, JIRA, and agile methodologies, into their coursework (ADB, 2021).

To embed real-world relevance into academic programs, practical projects should form a significant portion of the curriculum. For instance, mandatory capstone projects, internships, and cooperative education (co-op) programs can allow students to solve actual industry challenges while gaining exposure to workplace environments (ILO, 2021). Including elective modules on niche and rapidly evolving domains such as blockchain,

Internet of Things (IoT), or robotic process automation (RPA) can also help students specialize in in-demand areas.

Flexible curriculum structures that allow regular updates in response to technological advancements are essential. Institutions can establish dedicated advisory boards consisting of industry professionals, alumni, and academic staff to ensure curricula remain current and globally competitive (Jayamanna, 2024).

#### **5.4.2 Enhancing Practical Exposure through Partnerships**

Industry-academia partnerships play a pivotal role in bridging the gap between theoretical knowledge and practical skills, ensuring that students are better prepared to meet the demands of the workforce. Such collaborations bring invaluable exposure to the real-world applications of academic concepts. There are several key ways in which these partnerships can be fostered:

**Structured Internship Programs:** Universities should formalize and expand partnerships with IT companies to offer students structured internship programs. These internships provide students with opportunities to apply theoretical knowledge in a practical setting, enhancing their learning experience. By collaborating with industry, universities can ensure that students gain hands-on experience in real-world scenarios, making them more marketable upon graduation. Paid internships can serve as an added incentive for students, allowing them to financially support their education while also gaining valuable exposure to the workplace environment. Moreover, these internships can lead to potential job offers, creating a seamless transition from academia to industry (Times Higher Education, 2023).

**Industry-Led Workshops and Seminars:** Another effective avenue for enhancing practical exposure is through industry-led workshops, seminars, and training sessions. IT companies can partner with universities to bring in industry experts who can host guest lectures or deliver seminars focused on emerging technologies, trends, and workplace tools. These sessions can also cover important soft skills development, such as communication, teamwork, and problem-solving, which are essential for success in any professional environment. Hackathons, often organized by tech companies, can provide students with a platform to collaborate and innovate, working on real-world problems and competing to create solutions. These events not only boost practical knowledge but also help students build a professional network within the industry (ADB, 2021).

**Mentorship and Coaching:** Mentorship and coaching programs are vital for guiding students as they transition from academia to the workforce. Industry professionals can

offer valuable insights into career paths, providing advice on the necessary skills and experiences required to succeed in various roles. Additionally, mentors can help students understand workplace expectations, culture, and the real-world application of their academic learning. Through one-on-one mentoring, students can develop a clearer vision of their career trajectory while benefiting from the guidance and wisdom of professionals who have already navigated the industry. This helps bridge the knowledge gap and equips students with the tools to succeed after graduation (SLASSCOM, 2024).

**Joint Research Initiatives:** Universities and industry stakeholders should actively engage in joint research initiatives that address real-world challenges within the IT sector. Collaborative research projects not only provide students with practical experience in problem-solving and innovation but also enable them to contribute to addressing current issues faced by industries. These initiatives can foster an environment of innovation and discovery while strengthening the relationship between academia and industry. Through such collaborations, students can gain exposure to cutting-edge technologies, methodologies, and tools, allowing them to remain at the forefront of industry trends. Moreover, these partnerships often lead to the development of new products, solutions, or technologies that benefit both the academic and professional spheres (ILO, 2021).

### **5.4.3 Faculty Development and Industry Alignment**

Faculty members are pivotal in shaping the competencies of future graduates. To ensure educators are well-versed in cutting-edge technologies and workplace requirements, universities must invest in faculty development initiatives. These could include:

**Continuous Professional Development (CPD):** Encourage faculty to participate in workshops, certifications, and conferences on emerging IT trends (TVEC, 2021).

**Industry Sabbaticals:** Offer opportunities for faculty to gain practical experience by temporarily working in industry roles (Jayamanna, 2024).

**Collaboration with Industry Experts:** Facilitate co-teaching arrangements where industry professionals share teaching responsibilities for specific modules, ensuring practical relevance in academic delivery (Times Higher Education, 2023).

Regular training for faculty can also improve pedagogical practices, enabling educators to adopt learner-centered approaches that emphasize problem-solving, critical thinking, and teamwork (IPS, 2017).

#### **5.4.4 Investments in Infrastructure and Digital Tools**

A lack of access to state-of-the-art infrastructure and digital tools often hampers the practical readiness of graduates. HEIs must prioritize the creation of modern labs equipped with industry-standard hardware and software. For instance, universities can develop:

**Innovation Hubs:** These can serve as collaborative spaces for students, faculty, and industry professionals to work on real-world projects (SLASSCOM, 2024).

**Virtual Labs:** Cloud-based virtual environments can provide scalable solutions for practicing programming, cybersecurity, or DevOps skills (ADB, 2021).

**Hackathon Platforms:** Dedicated spaces for hackathons or coding competitions can help students build problem-solving capabilities and technical expertise (World Bank, 2016).

Policymakers and industry stakeholders must collaborate to provide financial and technical support for infrastructure development, particularly in resource-constrained institutions (TVEC, 2021).

#### **5.4.4 Promoting Lifelong Learning and Micro-Credentials**

Given the fast-paced nature of technological advancements, universities must embrace lifelong learning as a core principle. Offering flexible micro-credentialing programs, such as certificates in specific IT domains, can help professionals upskill or reskill throughout their careers (ILO, 2021).

Micro-credentials should be stackable, enabling learners to accumulate credits toward formal qualifications like diplomas or degrees. Institutions can also partner with online learning platforms (e.g., Coursera, Udemy) to deliver such programs, broadening access and flexibility for working professionals (ADB, 2021).

Employers can support lifelong learning by sponsoring employee training programs, providing time off for skill development, or subsidizing online certifications (IPS, 2017). Policies promoting continuous learning will ensure that professionals remain adaptable in the face of rapid technological change (IPS, 2017).

#### **5.4.5 Standardizing Competencies through a National Framework**

A cohesive and standardized national competency framework is essential for aligning expectations across academia, industry, and policymakers. Such a framework should

define the technical, behavioral, and interpersonal competencies required for different roles within the IT sector (SLASSCOM, 2024).

Developing this framework involves close collaboration with employers, academic institutions, and professional associations. The framework should act as a benchmark for curriculum design, graduate assessment, and industry hiring practices. Regular updates to reflect changes in the global IT landscape will ensure its continued relevance (ADB, 2021).

#### **5.4.6 Incentivizing Industry Engagement**

Policymakers can drive industry engagement through financial incentives, such as tax credits for companies offering internships or co-op programs (ILO, 2021). Recognizing organizations that actively contribute to skill development through awards or certifications can encourage broader participation (World Bank, 2016).

Further, creating publicly funded grants for joint industry-academic projects can incentivize collaboration. These projects can address critical issues, such as improving local IT infrastructure, fostering innovation, or training underserved communities in digital skills (Jayamanna, 2024).

#### **5.4.7 Addressing Regional Disparities**

Competency gaps are often exacerbated in rural or underserved regions, where access to resources, industry opportunities, and quality education is limited. Tailored interventions are needed to address these disparities, including:

**Remote Learning Initiatives:** Utilize online platforms to provide equal access to high-quality education and training programs (IPS, 2017).

**Satellite Campuses:** Establish industry-supported learning centers in rural areas to bridge the urban-rural skills divide (ADB, 2021).

**Targeted Scholarships:** Offer financial support to students from disadvantaged regions to pursue IT education and internships (ILO, 2021).

#### **5.4.8 Monitoring and Continuous Improvement**

Finally, monitoring and evaluation mechanisms must be embedded within any initiative to assess its effectiveness. Universities can track graduate outcomes, such as employment

rates, job performance, and employer satisfaction, to evaluate curriculum relevance (SLASSCOM, 2024). Industry partners should provide feedback on the readiness of new hires, while policymakers can leverage these insights to refine strategies (TVEC, 2021).

Regular data collection, combined with qualitative insights from students, graduates, and employers, will allow stakeholders to identify areas for improvement and scale successful interventions.

## **5.5 Broader Implications and Future Directions**

The findings and recommendations from this study highlight the critical need for systemic changes in Sri Lanka's IT education and industry practices. Beyond immediate interventions, it is crucial to consider the broader implications of addressing competency gaps and explore strategic pathways for sustainable growth. This section delves into the wider socio-economic impacts of bridging these gaps and outlines future directions for research, policy, and practice.

### **5.5.1 Enhancing Graduate Employability**

Bridging the competency gap has direct implications for the employability of IT graduates. Currently, many graduates face challenges in securing employment due to misaligned skillsets, resulting in underemployment or job dissatisfaction (ILO, 2016). Addressing these gaps through curriculum reform, internships, and industry exposure will improve the quality of graduates entering the job market, equipping them with the skills necessary to meet employer expectations (IPS, 2017).

Improved employability also contributes to reduced youth unemployment rates, a critical socio-economic concern in Sri Lanka (ICTA, 2014). By creating a workforce that is agile, innovative, and industry-ready, the nation can unlock opportunities for its youth and reduce the economic burden associated with unemployment. Furthermore, employable graduates attract global employers, paving the way for Sri Lanka to become a hub for outsourcing and IT services (Senarath, 2014).

### **5.5.2 Strengthening the IT Ecosystem**

A skilled and competent workforce is the backbone of a thriving IT sector. By addressing competency gaps, Sri Lanka's IT industry can enhance its productivity and global competitiveness (ICTISC, 2021). Companies will spend less on training new employees,

enabling them to allocate resources toward innovation, research, and expansion (Jayamaha, 2021).

The IT sector's growth also has a multiplier effect on other industries, such as finance, healthcare, and agriculture, which increasingly rely on technology-driven solutions (World Bank, 2020). A robust IT ecosystem can support these sectors by providing talent capable of developing innovative solutions to address industry-specific challenges.

### **5.5.3 Boosting Economic Growth**

The IT sector is a significant contributor to Sri Lanka's economy, with potential to drive export earnings and attract foreign investment (ICTA, 2014). Bridging the competency gap will enhance the sector's output by creating a workforce that meets global standards. This, in turn, can attract multinational corporations (MNCs) looking to outsource IT projects to countries with skilled talent pools (ILO, 2016).

Additionally, a well-trained workforce can stimulate entrepreneurship within the IT sector. Graduates equipped with technical and managerial skills are more likely to launch startups, driving innovation and job creation (Perera & Abeysekera, 2015). Policymakers can further support this trend by creating incubators, funding mechanisms, and tax incentives to encourage entrepreneurial ventures in the technology domain (Senarath, 2014).

### **5.5.4 Addressing Brain Drain**

Sri Lanka faces challenges related to brain drain, where talented individuals leave the country in search of better opportunities abroad (IPS, 2017). Bridging the competency gap and creating a thriving local IT industry can reduce this trend. By providing attractive career opportunities, competitive salaries, and professional growth prospects, the nation can retain its talent and benefit from their contributions to the local economy (ILO, 2016).

Moreover, a competitive IT sector can attract expatriates back to Sri Lanka, reversing the brain drain phenomenon. Policies that incentivize skilled professionals to return, such as tax benefits, relocation assistance, and research grants, can further bolster this effort (ICTA, 2014).

### **5.5.5 Promoting Equity and Inclusion**

Competency gaps often exacerbate inequalities, particularly for students from rural or underserved regions who lack access to quality education and resources (ILO, 2016). Bridging these gaps has the potential to promote equity by providing all students with equal opportunities to succeed in the IT sector.

Initiatives such as remote learning platforms, scholarships for disadvantaged students, and regional training centers can help level the playing field (Jayamaha, 2021). Ensuring inclusivity in IT education and employment will also enhance diversity in the workforce, fostering a culture of innovation and collaboration (IPS, 2017).

### **5.5.6 Adapting to Future Technological Trends**

Technology evolves at an unprecedented pace, and the skillsets required today may become obsolete tomorrow. Addressing current competency gaps is only the first step; sustained efforts are needed to prepare for future technological trends (ICTISC, 2021).

Emerging domains such as quantum computing, blockchain, augmented reality (AR), and green computing are likely to redefine the IT landscape (World Bank, 2020). Universities and policymakers must adopt a forward-looking approach, embedding flexibility and adaptability into their curricula and strategies. Partnerships with global technology leaders can provide insights into upcoming trends and help prepare Sri Lanka's workforce for future challenges (ILO, 2016).

### **5.5.7 Encouraging Research and Innovation**

A focus on research and innovation is critical for long-term success in the IT sector. Addressing competency gaps in technical skills and practical experience lays the foundation for advanced research capabilities (Perera & Abeysekera, 2015). Universities can collaborate with industry partners to establish research centers focusing on areas such as artificial intelligence, cybersecurity, and data analytics.

Encouraging a culture of innovation within universities can also lead to the development of proprietary technologies and solutions. Graduates trained in research methodologies and critical thinking are better equipped to contribute to cutting-edge advancements, enhancing Sri Lanka's reputation as a knowledge hub (IPS, 2017).

## **5.6 Challenges and Limitations**

Every research study is subject to certain challenges and limitations that shape its outcomes and applicability. Acknowledging these aspects is crucial for maintaining

transparency, understanding the scope of the findings, and contextualizing the implications of the results. In this study, challenges were encountered primarily in the areas of data collection, sample size, and the qualitative nature of the methodology. Furthermore, limitations in generalizability, resource availability, and the dynamic nature of the IT sector in Sri Lanka influenced the interpretation of findings. This section explores these challenges in detail, evaluates their impact on the study, and proposes strategies to address them in future research.

### **5.6.1 Sample Size and Composition**

One of the primary limitations of this study was the relatively small sample size. While qualitative research prioritizes depth over breadth, the sample of 20–30 participants may not fully capture the diversity of perspectives across Sri Lanka’s IT industry and higher education institutions. The inclusion of participants from both public and private universities, as well as diverse geographic and socio-economic backgrounds, aimed to mitigate this limitation. However, regional disparities in access to IT education and employment opportunities may have introduced bias (International Labour Organization, 2016). For instance, graduates from urban universities often have greater exposure to industry trends compared to those from rural areas, influencing their perceptions of competency gaps.

To address this limitation, future studies could employ larger, more representative samples. Quantitative surveys or mixed-method approaches may provide broader insights into the national competency landscape while maintaining the depth of qualitative findings (World Bank, 2020).

### **5.6.2 Qualitative Nature of the Research**

The study’s qualitative design was instrumental in uncovering nuanced insights into the perspectives of graduates and industry professionals. However, the subjective nature of qualitative data introduces challenges related to interpretation and generalizability. Participant responses may reflect personal biases, cultural contexts, or individual experiences, which may not represent the broader population (Yin, 2014). Additionally, the reliance on interviews means that findings are shaped by the researcher’s ability to probe effectively and interpret responses accurately.

Future research could complement qualitative insights with quantitative data, such as employer satisfaction surveys, graduate employment statistics, or performance metrics

(Creswell, 2018). This mixed-method approach would enhance the reliability of findings and provide a more comprehensive understanding of competency alignment in Sri Lanka's IT sector.

### **5.6.3 Generalizability of Findings**

While the findings offer valuable insights into competency gaps in Sri Lanka's IT industry, their applicability to other sectors or countries is limited. The unique socio-economic, cultural, and technological context of Sri Lanka shapes the dynamics of higher education and industry interactions (Senarath, 2014). For instance, government policies, such as incentives for foreign direct investment (FDI) in IT, play a significant role in shaping the competency landscape.

To enhance generalizability, future research could include comparative analyses with other countries facing similar challenges. For example, examining competency alignment in regional competitors like India or Singapore may offer insights into best practices that could be adapted to the Sri Lankan context (IPS, 2017).

### **5.6.4 Resource Constraints**

Resource limitations posed significant challenges during the study. Financial and logistical constraints restricted the scope of data collection, particularly in reaching participants from remote or under-resourced areas (International Labour Organization, 2016). Additionally, the lack of access to state-of-the-art digital tools and platforms limited the study's ability to explore practical competencies comprehensively. For instance, analysing graduates' proficiency with emerging technologies like cloud computing or DevOps tools was constrained by the absence of standardized assessments (ICTISC, 2021).

Future research could benefit from greater funding and support from academic institutions, industry stakeholders, or government bodies. Collaborative projects with industry partners could provide access to tools, technologies, and data, enriching the study's scope and depth (Jayamaha, 2021).

### **5.6.5 Evolving Nature of the IT Industry**

The rapid pace of technological advancements in the IT sector presents a unique challenge for research on competency alignment. Skills that are in demand today may become

obsolete within a few years, making it difficult to capture a static snapshot of industry expectations (World Bank, 2020). For example, emerging fields like artificial intelligence, blockchain, and quantum computing are reshaping the IT landscape, requiring continuous updates to academic curricula and professional training programs (ICTA, 2014).

To address this challenge, ongoing research and longitudinal studies are necessary. Tracking changes in industry demands and graduate competencies over time can provide dynamic insights and inform adaptive strategies for curriculum development and policy-making (Perera & Abeysekera, 2015).

### **5.6.6 Academic-Industry Collaboration**

While the study highlighted the importance of academia-industry partnerships, it also revealed challenges in fostering effective collaboration. Bureaucratic hurdles, mismatched priorities, and limited communication between stakeholders often hinder the alignment of educational outcomes with industry needs (IPS, 2017). For instance, slow curriculum updates due to institutional procedures may fail to keep pace with the rapidly evolving IT sector.

Addressing this challenge requires structured mechanisms for collaboration, such as advisory boards, joint research initiatives, and co-designed curricula. Policy interventions, such as incentives for industry engagement, could also promote stronger partnerships between academia and industry (ICTA, 2014).

### **5.6.7 Cultural and Behavioral Factors**

Cultural attitudes towards education and employment in Sri Lanka also present challenges. Traditional academic structures often prioritize theoretical knowledge over practical skills, while societal expectations may discourage risk-taking or innovative approaches to problem-solving (Jayamaha, 2021). Additionally, some participants noted resistance to change among educators, employers, or students, which can hinder the adoption of new teaching methodologies or workplace practices (Senarath, 2014).

To overcome these barriers, awareness campaigns and professional development programs are needed to foster a culture of innovation and lifelong learning. Encouraging educators and students to embrace change and adapt to evolving industry demands is essential for bridging the competency gap (IPS, 2017).

## **5.7 Broader Implications**

The findings of this study extend beyond immediate concerns of competency alignment and employability, carrying broader implications for Sri Lanka's economy, society, and global positioning in the IT sector. Addressing competency gaps in computing graduates is not merely an academic or industry challenge—it is a critical driver of national development. Improved alignment between academic outcomes and industry requirements can enhance employability, foster economic growth, and position Sri Lanka as a competitive player in the global IT landscape. This section explores these implications in detail, focusing on their impact on employability, economic development, industry competitiveness, and broader societal progress.

### **5.7.1 Enhancing Graduate Employability**

One of the most direct and significant implications of bridging competency gaps is the enhancement of graduate employability. Sri Lanka's youth unemployment rate remains a pressing concern, with many graduates unable to secure jobs within their fields of study. This mismatch between education and industry needs contributes to underemployment, skill underutilization, and economic stagnation (Gunawardena et al., 2020).

Aligning academic curricula with industry requirements ensures that graduates are equipped with the technical and interpersonal skills demanded by employers. For example, incorporating practical training, internships, and exposure to industry-standard tools into university programs can significantly improve graduate readiness for the workforce (Wijesundara, 2018). This shift not only increases individual employability but also alleviates the economic and social pressures associated with high graduate unemployment.

Moreover, employable graduates are better positioned to pursue meaningful careers that align with their skills and interests. This leads to greater job satisfaction, productivity, and retention, ultimately benefiting both employees and employers. By addressing competency gaps, Sri Lanka can create a workforce that is agile, adaptable, and capable of meeting the challenges of a dynamic global economy (ILO, 2021).

### **5.7.2 Reducing Youth Unemployment**

The reduction of youth unemployment has far-reaching socio-economic implications. Unemployed or underemployed graduates often face financial instability, reduced quality of life, and diminished social mobility. This can lead to broader societal issues, such as

increased reliance on public welfare systems and a rise in mental health concerns among young people (UNDP, 2020).

Addressing competency gaps can mitigate these challenges by equipping graduates with the skills needed to secure gainful employment. This, in turn, reduces the economic burden on the state, frees up resources for other developmental initiatives, and fosters a more stable and equitable society. Additionally, reducing youth unemployment helps cultivate a more confident and empowered generation, capable of driving innovation and contributing to national progress (World Bank, 2019).

### **5.7.3 Strengthening the IT Sector**

Sri Lanka's IT sector is a cornerstone of its economy, contributing significantly to GDP, foreign exchange earnings, and employment. However, the sector's growth is constrained by the lack of a sufficiently skilled workforce. Employers often report difficulties in finding graduates proficient in emerging technologies, resulting in increased training costs and reduced productivity (ICTA, 2020).

By aligning academic programs with industry needs, Sri Lanka can build a robust talent pipeline that supports the IT sector's continued growth. A skilled workforce enables IT firms to compete more effectively in global markets, attract foreign direct investment (FDI), and secure outsourcing contracts (Ekanayake & Perera, 2019). Furthermore, reducing dependency on imported expertise enhances the sector's self-sufficiency and sustainability.

A competitive IT sector also drives innovation across other industries, such as healthcare, finance, and agriculture, which increasingly rely on technology for efficiency and growth. By fostering a skilled workforce, Sri Lanka can position itself as a regional leader in IT services and solutions, capitalizing on its strategic location and growing reputation as a technology hub (Fernando, 2021).

### **5.7.4 Boosting Economic Growth**

The broader economic implications of competency alignment are substantial. A skilled and employable workforce drives productivity, attracts investment, and stimulates entrepreneurship. These factors collectively contribute to economic growth and development, creating a virtuous cycle of progress (World Economic Forum, 2020).

For instance, improving graduate employability reduces the time and resources employers spend on training, allowing them to focus on innovation and expansion. This increases

organizational efficiency and profitability, leading to higher tax revenues and greater contributions to national GDP. Additionally, skilled graduates are more likely to establish startups, creating jobs and fostering a culture of entrepreneurship and innovation (Gunawardena et al., 2020).

Furthermore, aligning educational outcomes with market needs enhances Sri Lanka's appeal as a destination for FDI. Global corporations are more likely to invest in countries with a readily available pool of skilled talent. By addressing competency gaps, Sri Lanka can attract multinational firms, boosting employment opportunities and economic activity (UNDP, 2020).

### **5.7.5 Addressing Brain Drain**

Brain drain—the migration of skilled professionals to other countries—remains a significant challenge for Sri Lanka. Many talented graduates leave the country in search of better opportunities, often citing limited career prospects and inadequate compensation as primary reasons. This outflow of talent deprives the nation of valuable human capital, hindering its ability to innovate and compete globally (World Bank, 2019).

Bridging competency gaps can help reverse this trend by creating attractive career opportunities within Sri Lanka. A well-aligned education system produces graduates who meet industry demands, making local employment more viable and rewarding. Additionally, fostering a thriving IT sector with competitive salaries and professional growth opportunities can retain talent and even attract expatriates back to the country (Fernando, 2021).

By addressing brain drain, Sri Lanka can maximize its human resource potential, ensuring that its brightest minds contribute to national development rather than seeking opportunities abroad.

### **5.7.6 Promoting Equity and Inclusion**

Competency alignment has the potential to promote greater equity and inclusion within Sri Lanka's education and employment systems. Rural and underprivileged communities often face barriers to accessing quality education and resources, resulting in unequal opportunities for skill development and employment (Wijesundara, 2018).

Addressing these disparities requires targeted interventions, such as scholarships, regional training centers, and remote learning platforms. By providing equitable access to education and skill-building opportunities, Sri Lanka can ensure that all individuals,

regardless of their background, have the chance to succeed in the IT sector. This not only enhances social cohesion but also diversifies the workforce, fostering creativity and innovation (ILO, 2021).

### **5.7.7 Enhancing Global Competitiveness**

In an increasingly interconnected world, a skilled workforce is a key determinant of a nation's global competitiveness. Countries with robust education systems and industry-aligned graduates are better positioned to attract investment, foster innovation, and participate in international markets (World Economic Forum, 2020).

By addressing competency gaps, Sri Lanka can strengthen its position in the global IT landscape. A reputation for producing highly skilled graduates can attract outsourcing contracts, international collaborations, and knowledge transfer opportunities. Furthermore, a competitive IT sector enhances Sri Lanka's overall economic standing, improving its ranking on global indices such as the World Economic Forum's Global Competitiveness Index (ICTA, 2020).

### **5.7.8 Fostering Lifelong Learning**

The dynamic nature of the IT industry underscores the importance of lifelong learning. Addressing current competency gaps is only the first step; sustaining a skilled workforce requires continuous upskilling and reskilling. Educational institutions, employers, and policymakers must collaborate to create flexible learning pathways, such as online courses, micro-credentials, and professional certifications (Gunawardena et al., 2020).

Promoting lifelong learning not only ensures workforce adaptability but also fosters a culture of innovation and continuous improvement. This is essential for maintaining Sri Lanka's competitiveness in an industry characterized by rapid technological advancements (World Economic Forum, 2020).

## CHAPTER 6

### CONCLUSION

This study highlights the criticality of competency alignment as a linchpin for Sri Lanka's economic, technological, and social advancement. The findings underline significant disparities between the competencies of Sri Lankan computing graduates and the rapidly evolving expectations of the IT industry. This gap, if unaddressed, threatens to undermine the country's potential to establish itself as a global IT hub, despite its strategic advantages and emerging capabilities.

The enhancement of graduate employability emerged as a central implication of addressing competency gaps. Unemployment and underemployment among graduates reflect broader systemic issues, including outdated curricula and limited industry-academia collaboration. By aligning educational programs with market needs, higher education institutions can equip students with the technical, practical, and interpersonal skills necessary for workforce integration. The implementation of internships, co-op programs, and real-world projects into curricula not only increases individual employability but also alleviates socio-economic pressures, such as youth unemployment, a critical concern in Sri Lanka. A workforce that is well-prepared and aligned with industry needs becomes an asset for employers, reducing the time and cost of onboarding and training.

The IT sector, a cornerstone of Sri Lanka's economy, stands to benefit immensely from these reforms. A skilled workforce bolsters the sector's productivity and competitiveness in global markets. This, in turn, attracts foreign direct investment (FDI) and outsourcing opportunities, both of which are vital for sustaining the sector's growth trajectory. Moreover, strengthening the IT ecosystem has a multiplier effect, fostering innovation and efficiency in ancillary industries such as healthcare, finance, and agriculture. Thus, the alignment of graduate competencies is not merely an academic or industry concern—it is a catalyst for economic diversification and resilience.

From an economic perspective, competency alignment contributes to GDP growth by enhancing the output and efficiency of the IT sector. Furthermore, it reduces the financial burden on businesses, which often invest heavily in retraining underprepared graduates. These savings can be redirected toward innovation and expansion, creating a virtuous

cycle of growth and development. Additionally, aligned educational outcomes encourage entrepreneurship among graduates, fostering a culture of innovation and job creation. Entrepreneurial ventures in the IT domain are not only engines of growth but also drivers of technological advancement, positioning Sri Lanka as a competitive player in the global tech landscape.

Addressing competency gaps also holds promise for mitigating brain drain, a persistent challenge for Sri Lanka. Many skilled graduates leave the country in search of better career prospects, citing limited opportunities and inadequate compensation as primary reasons. By ensuring that local academic institutions produce industry-ready graduates, the IT sector can offer attractive career paths that incentivize professionals to remain in the country. Additionally, a competitive IT sector has the potential to reverse brain drain by attracting expatriates back to Sri Lanka. Policies that support talent retention and repatriation, such as tax benefits, competitive salaries, and career growth opportunities, are integral to maximizing the nation's human capital.

Equity and inclusion are vital considerations in competency alignment. Addressing disparities in access to quality education, particularly in rural and underserved regions, is essential for fostering a diverse and innovative workforce. Initiatives such as remote learning platforms, regional training centers, and scholarships for disadvantaged students can help bridge these gaps. A more inclusive IT sector not only enhances social cohesion but also leverages diverse perspectives to drive creativity and problem-solving. Ensuring that all individuals, regardless of their socio-economic background, have the opportunity to succeed in the IT industry is a cornerstone of sustainable development.

The dynamic nature of the IT industry underscores the importance of lifelong learning. Continuous upskilling and reskilling are indispensable for maintaining workforce relevance in a rapidly changing technological landscape. Universities, employers, and policymakers must collaborate to create flexible learning pathways, including online certifications, modular courses, and microcredentials. Promoting a culture of lifelong learning ensures that professionals can adapt to emerging trends and challenges, safeguarding the sector's long-term competitiveness.

Collaboration among stakeholders is essential for bridging the competency gap. Higher education institutions must work closely with industry leaders to design curricula that reflect real-world demands. Policymakers have a pivotal role in fostering these collaborations through targeted interventions, such as grants, tax incentives, and regulatory frameworks that support academia-industry partnerships. Employers, too, must invest in workforce development through internships, mentorship programs, and ongoing

training initiatives. Only through collective effort can Sri Lanka build a resilient and future-ready IT workforce.

In conclusion, addressing the competency gap between computing graduates and industry expectations is not just a pathway to enhancing employability; it is a national imperative with far-reaching implications for Sri Lanka's economic, social, and technological progress. The alignment of academic outcomes with market needs serves as a foundation for a robust IT sector capable of driving innovation, attracting investment, and fostering equitable development. By embracing a culture of collaboration, lifelong learning, and adaptability, Sri Lanka can unlock the full potential of its human capital, positioning itself as a global leader in the IT domain. This journey requires a shared commitment from academia, industry, and policymakers to build an education system and workforce that are not only relevant for today but prepared for the challenges of tomorrow.

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## APPENDIX A

### Industry Experts Interview Transcript

#### Participant 1: Interview Results

##### 1. Background Information:

- **Current Role and Experience:**

I am currently a Senior IT Manager at a multinational tech firm, and I oversee the recruitment and training of new hires. I have been working in the IT industry for over 12 years, with a primary focus on software development and project management.

- **Experience in Hiring and Assessment:**

I've been directly involved in the hiring and assessment of new graduates for the past 8 years. During this period, I've been responsible for reviewing resumes, conducting interviews, and determining if candidates possess the skills and potential required for the roles in our company.

##### 2. Competency Definition and Scope:

- **Essential Competencies for Success:**

A computing graduate should possess a strong understanding of programming languages, problem-solving abilities, and the capacity to think critically. They should also be familiar with algorithms, data structures, and have a basic understanding of software development methodologies (e.g., Agile).

- **Definition of Competency in IT Industry:**

Competency in the IT industry means not only having technical knowledge but also the ability to apply that knowledge to real-world challenges. It includes both hard skills (technical knowledge) and soft skills (communication, teamwork, etc.).

- **Ranking of Competencies for Fresh Graduates:**

Technical Skills (e.g., programming, software development)

Problem-Solving

Communication Skills

Teamwork and Collaboration

Adaptability to New Technologies

Leadership Potential

### 3. Industry Expectations:

- **Technical Skills Expected from Graduates:**

Graduates should have proficiency in at least one programming language (Java, Python, or C++) and be familiar with databases, software development frameworks, and version control systems like Git.

- **Critical Soft Skills for Success:**

Strong communication skills, both written and verbal, are essential. In addition, the ability to work in teams, critical thinking, and time management are highly valued.

- **Emerging Technologies/Skills:**

Knowledge of emerging technologies such as AI, machine learning, cloud computing, and cybersecurity is increasingly expected. Familiarity with DevOps tools and practices is also becoming critical.

### 4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

While many graduates have a good theoretical foundation, they often lack practical experience. Many struggle with applying their knowledge to real-world scenarios, and there is a gap in understanding industry tools and practices.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who excelled were those who had completed internships, where they applied their skills in real-world environments. On the other hand, graduates who struggled often had strong academic records but lacked experience with industry-specific software and tools.

- **Most Significant Gaps in Competencies:**

The biggest gaps are in the practical application of technical skills, knowledge of industry-standard tools, and the ability to communicate effectively within a team.

### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

Universities should focus more on hands-on experience and internships. Theoretical knowledge is important, but graduates must also have exposure to real-world projects and collaborative environments.

- **Collaboration Between Academia and Industry:**

Yes, there needs to be more collaboration. Universities should involve industry experts

in curriculum design and offer more practical training opportunities. Internship programs should be mandatory.

- Additional Comments:

I believe that universities need to focus on instilling a problem-solving mindset in students rather than just focusing on technical knowledge. Graduates should be taught how to approach complex challenges and find innovative solutions.

## Participant 2: Interview Results

### 1. Background Information:

- Current Role and Experience:

I am a Chief Technology Officer (CTO) at a mid-sized IT consulting company. I have over 15 years of experience in software engineering, IT consulting, and leadership roles, where I am responsible for overseeing technology solutions and leading a team of engineers.

- Experience in Hiring and Assessment:

I have been directly involved in the hiring process for the last 6 years. My role includes conducting technical interviews, reviewing candidates' portfolios, and assessing their ability to adapt to our fast-paced environment.

### 2. Competency Definition and Scope:

- Essential Competencies for Success:

The key competencies a computing graduate should possess are strong coding skills, a deep understanding of data structures and algorithms, and the ability to adapt to new tools quickly. Soft skills such as communication and problem-solving are also critical, especially in a client-facing role.

- Definition of Competency in IT Industry:

In the IT industry, competency is defined as a combination of technical expertise, critical thinking, and emotional intelligence. It's about applying knowledge to solve complex problems and maintaining flexibility to learn new skills as technologies evolve.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (proficiency in coding and algorithms)

Adaptability and Learning Ability

Problem-Solving Abilities

Collaboration and Teamwork

## Communication Skills

### 3. Industry Expectations:

- **Technical Skills Expected from Graduates:**

I expect graduates to be proficient in at least one programming language and have experience with cloud computing platforms such as AWS or Azure. Additionally, familiarity with software development lifecycle methodologies like Agile is important.

- **Critical Soft Skills for Success:**

Strong interpersonal skills are a must. Graduates should be able to work in diverse teams, understand client needs, and communicate complex technical solutions clearly. The ability to handle ambiguity and maintain a positive attitude under pressure is also crucial.

- **Emerging Technologies/Skills:**

Familiarity with emerging technologies such as blockchain, AI, and data science is increasingly becoming important. Graduates should also be aware of cybersecurity best practices, as this is a growing concern for all businesses.

### 4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

Unfortunately, many of the graduates we interview lack hands-on experience with industry tools. They have the theoretical knowledge, but they don't always know how to apply it effectively in a real-world setting.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who excelled were those who had taken part in extracurricular activities like coding bootcamps or personal projects outside of their academic curriculum. However, graduates who lacked real-world project experience often struggled to adapt quickly.

- **Most Significant Gaps in Competencies:**

There is a significant gap in practical, hands-on experience with development environments and industry tools. Soft skills, especially in client communication and teamwork, are also areas where many graduates fall short.

### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

I think universities should focus more on practical application and real-world problem-solving. Including more project-based learning and industry collaborations would be beneficial.

- Collaboration Between Academia and Industry:

Absolutely, closer collaboration is needed. Academia should be more attuned to the changing needs of the industry, and we, as employers, should contribute by offering real-world case studies and practical training opportunities for students.

- Additional Comments:

I believe that universities should help students develop a growth mindset and resilience. The ability to learn and adapt quickly is just as important as technical proficiency, especially as technology changes so rapidly.

### Participant 3: Interview Results

#### 1. Background Information:

- Current Role and Experience:

I am a Lead Developer at a local tech startup focusing on mobile applications. I've been in the industry for over 10 years, with experience in software development, system design, and now leading a team of junior developers. My role primarily involves developing mobile solutions and overseeing the technical direction of projects.

- Experience in Hiring and Assessment:

I've been involved in hiring new graduates for about 4 years. My role includes assessing both technical skills through coding challenges and evaluating their ability to integrate into a fast-paced startup environment.

#### 2. Competency Definition and Scope:

- Essential Competencies for Success:

For a graduate to be successful, they should have a solid understanding of mobile development frameworks (e.g., React Native or Flutter) and be able to work with databases. They should also possess strong problem-solving skills and a willingness to learn new technologies as required.

- Definition of Competency in IT Industry:

Competency, to me, means being able to perform effectively in a work environment using a combination of technical expertise, communication skills, and the ability to troubleshoot and solve problems quickly. It's not just about knowing something but applying it effectively.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (e.g., mobile development, databases)

Problem-Solving and Critical Thinking

Adaptability to New Technologies

Team Collaboration

Communication Skills

3. Industry Expectations:

- **Technical Skills Expected from Graduates:**

I expect graduates to have solid skills in mobile application development, familiarity with APIs, and experience with front-end and back-end technologies. Knowledge of version control tools like Git is also crucial for collaboration in our team environment.

- **Critical Soft Skills for Success:**

Strong teamwork and collaboration skills are necessary, as well as a proactive attitude. We need graduates who can take initiative, contribute ideas, and work effectively within a team. Additionally, being able to communicate technical details to non-technical stakeholders is important in our industry.

- **Emerging Technologies/Skills:**

Graduates should be familiar with emerging mobile development frameworks and have some understanding of cross-platform development tools. Familiarity with cloud services (e.g., Firebase) is also becoming increasingly important for our projects.

4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

In my experience, graduates generally have good foundational knowledge, but they often lack practical experience with real-world mobile development. Most are not fully proficient with the tools we use daily.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who excelled were those who participated in hackathons or open-source projects and had exposure to mobile app development outside their academic environment. However, those who relied solely on academic projects often lacked the practical experience we need in a startup setting.

- **Most Significant Gaps in Competencies:**

The main gap is in real-world application and understanding of the tools we use, such as Git and continuous integration platforms. Graduates also need to improve their problem-solving abilities, especially in debugging and optimizing code.

5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

More emphasis should be placed on mobile development and real-world applications. Universities should incorporate internships, hands-on projects, and exposure to industry-standard tools to ensure that graduates are prepared for immediate work.

- **Collaboration Between Academia and Industry:**

Yes, closer collaboration is crucial. Universities should reach out to tech companies to better understand industry needs and adapt curricula accordingly. Industry professionals can also offer guest lectures or workshops that provide insights into the skills required in the workplace.

- **Additional Comments:**

It's essential for universities to foster a mindset of continuous learning. Given the rapid pace of technological advancement, graduates need to be adaptable and self-motivated to continue learning after they graduate.

#### Participant 4: Interview Results

##### 1. Background Information:

- **Current Role and Experience:**

I am a Software Engineer at a large multinational IT company specializing in cloud services. With over 8 years of experience in various roles, including software development, architecture design, and quality assurance, I now focus on building and scaling cloud applications.

- **Experience in Hiring and Assessment:**

I have been involved in the hiring process for the last 5 years, specifically in evaluating candidates' programming skills, problem-solving ability, and their capacity to work in high-pressure environments typical in cloud application development.

##### 2. Competency Definition and Scope:

- **Essential Competencies for Success:**

A successful computing graduate should have a strong grasp of programming concepts, a good understanding of cloud computing, and familiarity with DevOps practices. Additionally, being able to collaborate with cross-functional teams is key in my line of work.

- **Definition of Competency in IT Industry:**

Competency is defined as the ability to apply technical skills and knowledge in solving practical, real-world challenges. It also includes personal attributes such as

communication, time management, and the ability to work independently or as part of a team.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (particularly in cloud services and programming)

Problem-Solving Skills

Collaboration Skills

Time Management and Efficiency

Adaptability to Emerging Technologies

### 3. Industry Expectations:

- Technical Skills Expected from Graduates:

Graduates should have a solid understanding of cloud platforms (AWS, Azure, Google Cloud), programming languages (Java, Python, etc.), and familiarity with CI/CD (Continuous Integration/Continuous Deployment) pipelines. They should also have basic knowledge of databases and containerization tools like Docker.

- Critical Soft Skills for Success:

In addition to technical knowledge, the ability to work collaboratively in a cross-functional team is essential. Graduates need to communicate well, especially when working on large projects with remote teams, and must be able to manage multiple tasks effectively under tight deadlines.

- Emerging Technologies/Skills:

Graduates should be aware of containerization technologies (Docker, Kubernetes), cloud-native applications, and have an understanding of microservices architecture. Familiarity with security practices in cloud environments is also crucial.

### 4. Evaluation of Current Graduates:

- How Well Do Graduates Meet Expectations:

Overall, I've found that while most graduates possess a strong academic background, they often lack hands-on experience in cloud computing and the tools we use in real-world environments. This makes their initial transition into the workforce challenging.

- Examples of Graduates Excelling or Falling Short:

Graduates who have interned with tech companies or worked on personal cloud projects tend to do better. They come with practical experience that's valuable in solving real-

world problems. On the other hand, those without this practical experience often struggle to adapt, even if they have strong theoretical knowledge.

- **Most Significant Gaps in Competencies:**

The most significant gap is in practical experience, especially with cloud platforms and DevOps practices. Many graduates need more exposure to real-world cloud systems and how they operate in a production environment.

#### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

Universities should focus more on cloud computing and DevOps practices, as these are critical in the industry today. Incorporating hands-on labs and projects related to cloud platforms and automation tools would be beneficial.

- **Collaboration Between Academia and Industry:**

There definitely needs to be more collaboration. Industry experts should work closely with universities to design curricula that reflect the latest technological trends and the skill sets required by employers. Universities should also integrate more practical internships and project work into their programs.

- **Additional Comments:**

It's crucial for universities to ensure that students are not just well-versed in theory but also equipped with the practical skills needed for the job market. Employers like us often have to invest time in training new graduates because they lack the hands-on experience that is essential for success in the IT industry.

#### Participant 5: Interview Results

##### 1. Background Information:

- **Current Role and Experience:**

I am a Senior IT Consultant at a leading global IT solutions provider. With 18 years in the industry, I specialize in system architecture, enterprise software solutions, and IT project management. My role also includes working closely with clients to ensure that the technological solutions we provide are aligned with their business needs.

- **Experience in Hiring and Assessment:**

I've been involved in the recruitment process for the past 7 years, primarily assessing candidates' technical skills, ability to work under pressure, and cultural fit within the organization.

##### 2. Competency Definition and Scope:

- Essential Competencies for Success:

Computing graduates need a combination of strong technical skills (e.g., coding, system architecture, and database management) and soft skills such as client interaction, teamwork, and the ability to manage projects. They must also have a proactive learning attitude to adapt to new technologies quickly.

- Definition of Competency in IT Industry:

Competency in the IT industry encompasses technical knowledge, the ability to apply that knowledge effectively in a business context, and the interpersonal skills necessary to collaborate with clients and colleagues. It's also about the capacity to handle ambiguity and solve complex problems.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (programming, systems design)

Problem-Solving and Critical Thinking

Client Communication and Interpersonal Skills

Project Management Skills

Adaptability and Willingness to Learn

### 3. Industry Expectations:

- Technical Skills Expected from Graduates:

Graduates should be proficient in programming languages such as Java, Python, and C++. They should also have knowledge of system architecture, database management, and cloud technologies. Furthermore, familiarity with project management tools and methodologies like Agile is becoming increasingly important.

- Critical Soft Skills for Success:

Strong communication skills are crucial, as graduates will need to explain technical solutions to non-technical stakeholders. Additionally, the ability to work in a team and under pressure, as well as client management skills, are highly valued in the industry.

- Emerging Technologies/Skills:

Knowledge of cloud computing platforms (AWS, Azure) and enterprise resource planning (ERP) systems is highly desirable. Graduates should also be familiar with the principles of data analytics and artificial intelligence, as these fields are becoming integral to business solutions.

### 4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

While graduates possess a good theoretical understanding, they often fall short when it comes to practical implementation of their knowledge. Many struggle with applying their academic learning to solve real business problems and working with modern technologies like cloud platforms.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who had completed internships or participated in collaborative projects tend to perform better, as they have had exposure to real-world environments. Those who have limited hands-on experience, however, often face challenges when they begin working on large-scale projects.

- **Most Significant Gaps in Competencies:**

The most significant gap lies in the practical application of technical skills and familiarity with business-specific tools. Many graduates also lack experience with client-facing roles and fail to understand how their technical solutions align with business objectives.

## 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

I believe universities should place more emphasis on real-world applications and hands-on experience with modern technologies like cloud computing, system architecture, and databases. Furthermore, integrating project management and client interaction skills into the curriculum would help prepare graduates for the industry.

- **Collaboration Between Academia and Industry:**

Yes, closer collaboration is essential. Universities should work with industry professionals to ensure that the curriculum reflects current industry needs. Additionally, internships and collaborative research projects should be made a mandatory part of the curriculum to help students gain practical experience.

- **Additional Comments:**

It's crucial that universities focus on developing a more holistic approach to training, where graduates not only possess strong technical skills but also understand the broader business context in which their solutions will be applied. This will enable them to make a more immediate impact in the workplace.

## Participant 6: Interview Results

### 1. Background Information:

- **Current Role and Experience:**

I am a Technical Project Manager at an IT services firm specializing in custom software solutions. I have 11 years of experience in software development, project management, and client-facing roles. My current responsibilities include managing development teams and overseeing the timely delivery of projects for our clients.

- **Experience in Hiring and Assessment:**

I've been involved in hiring new graduates for the past 4 years. In my role, I evaluate candidates for both technical proficiency and their ability to work in a project environment, managing tasks and collaborating with clients.

## 2. Competency Definition and Scope:

- **Essential Competencies for Success:**

Graduates should have strong technical expertise, especially in software development. However, they also need to have practical project management skills, an understanding of client requirements, and the ability to communicate effectively in a team. Strong organizational skills are also critical for success in project management roles.

- **Definition of Competency in IT Industry:**

Competency in the IT industry involves a mix of technical and soft skills. It's about having the knowledge and ability to apply it efficiently while working with teams and clients. Competency also includes understanding how to deliver results under deadlines and working collaboratively in a multidisciplinary environment.

- **Ranking of Competencies for Fresh Graduates:**

Technical Skills (especially coding and development tools)

Problem-Solving and Analytical Thinking

Project Management and Organizational Skills

Communication Skills

Teamwork and Collaboration

## 3. Industry Expectations:

- **Technical Skills Expected from Graduates:**

Graduates should have a strong grasp of coding in at least one programming language, familiarity with version control systems like Git, and knowledge of databases and software development life cycles (SDLC). Familiarity with project management tools like Jira or Trello is also an added advantage.

- **Critical Soft Skills for Success:**

Strong communication skills, both written and verbal, are essential. Graduates should be able to explain their technical solutions clearly to clients and team members.

Additionally, the ability to work collaboratively and manage multiple tasks simultaneously is crucial in our fast-paced environment.

- **Emerging Technologies/Skills:**

Graduates should have some understanding of cloud platforms (AWS, Azure), as these are becoming integral to many software solutions. Knowledge of Agile methodologies is also increasingly important for project delivery.

#### 4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

While many graduates are technically proficient, they often struggle with the project management aspects of their roles. Graduates typically lack exposure to real-world project delivery and client-facing situations, which makes it difficult for them to transition smoothly into project-based work environments.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who performed well in internships and collaborative student projects tended to excel in our hiring process. Those who lacked such experiences often struggled to apply their theoretical knowledge to practical tasks, especially when dealing with clients or managing deadlines.

- **Most Significant Gaps in Competencies:**

The biggest gaps I've noticed are in the areas of project management, time management, and client communication. Many graduates are highly skilled technically, but they need more practical experience working on projects in a collaborative, deadline-driven environment.

#### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

Universities should focus on including project management and real-world problem-solving scenarios within their curricula. Additionally, teaching students how to communicate effectively with clients and collaborate across different departments would make them more adaptable in professional settings.

- **Collaboration Between Academia and Industry:**

Yes, closer collaboration is vital. Universities should work with industry professionals to design curricula that include both technical skills and soft skills like project management

and communication. Industry partnerships could also offer students more internship opportunities that provide real-world exposure.

- **Additional Comments:**

I think universities could also focus more on building a practical mindset in students. Graduates need to understand that in a professional setting, it's not just about writing code; it's about delivering a product that meets client requirements and expectations, on time and within budget.

### Participant 7: Interview Results

#### 1. Background Information:

- **Current Role and Experience:**

I am a Senior Systems Architect at a leading tech consultancy firm, specializing in enterprise IT solutions. I have over 14 years of experience in system design, architecture, and consulting, with a focus on helping large enterprises optimize their IT infrastructure.

- **Experience in Hiring and Assessment:**

I have been actively involved in hiring new graduates for the past 6 years, evaluating candidates for both technical expertise and their ability to handle complex system integration projects.

#### 2. Competency Definition and Scope:

- **Essential Competencies for Success:**

Graduates should possess strong technical knowledge in systems architecture and cloud solutions. In addition to technical skills, they must be able to manage multiple projects and demonstrate excellent problem-solving abilities in fast-paced environments.

- **Definition of Competency in IT Industry:**

Competency, from my perspective, refers to having the necessary technical expertise and the capability to apply that knowledge effectively. It also includes the ability to work under pressure, manage complex projects, and collaborate with diverse teams to meet organizational goals.

- **Ranking of Competencies for Fresh Graduates:**

Technical Skills (knowledge of systems architecture, cloud technologies)

Problem-Solving Abilities

Project Management Skills

Team Collaboration and Communication

Adaptability to Emerging Technologies

3. Industry Expectations:

- **Technical Skills Expected from Graduates:**

Graduates should have a solid understanding of systems architecture, networking, and cloud platforms (AWS, Google Cloud). Additionally, knowledge of databases, system integration techniques, and security principles is essential for the work we do.

- **Critical Soft Skills for Success:**

Problem-solving, time management, and communication skills are critical in this field. Graduates must be able to break down complex problems, manage project deadlines, and communicate their ideas clearly to both technical and non-technical stakeholders.

- **Emerging Technologies/Skills:**

Familiarity with cloud computing platforms, containerization technologies (Docker, Kubernetes), and automation tools is becoming increasingly important. Additionally, as the industry evolves, understanding artificial intelligence (AI) and machine learning applications in system design will be an added advantage.

4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

In my experience, graduates tend to have a strong theoretical foundation but often lack hands-on experience with the technologies we use in day-to-day operations. They need more practical exposure to systems design and cloud environments.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who have taken part in internships or worked on real-world projects during their studies tend to perform better. Those without such experience may have the theoretical knowledge but struggle with practical problem-solving and system integration challenges.

- **Most Significant Gaps in Competencies:**

The largest gap I've noticed is in practical, hands-on experience with cloud systems and enterprise-level system architecture. Graduates often lack the understanding of how different components of a system fit together in real-world scenarios.

5. Suggestions for Improvement:

- Areas to Emphasize More in Curricula:

I would recommend universities place more emphasis on real-world projects and internships. Graduates should be exposed to system integration, cloud platforms, and enterprise IT solutions to be better prepared for the workplace.

- Collaboration Between Academia and Industry:

Yes, I strongly believe there should be closer collaboration. Universities can partner with industry players to design curriculums that are directly aligned with the needs of the industry. More real-world projects and internship programs would also help.

- Additional Comments:

It would also be helpful if universities taught students how to adapt quickly to new technologies, as the IT sector is constantly evolving. Graduates should be taught to remain flexible and continuously learn to stay ahead in this field.

#### Participant 8: Interview Results

##### 1. Background Information:

- Current Role and Experience:

I am the Director of Technology at a software development company. I have over 16 years of experience in IT project management, software development, and technical leadership. I specialize in designing large-scale enterprise applications and leading technology teams.

- Experience in Hiring and Assessment:

I have been responsible for hiring new graduates for the past 5 years, with a focus on evaluating their technical abilities, problem-solving skills, and cultural fit within our team.

##### 2. Competency Definition and Scope:

- Essential Competencies for Success:

A computing graduate should have a solid understanding of the software development lifecycle (SDLC), be proficient in one or more programming languages, and have experience working with databases. They should also possess the ability to solve complex problems and communicate their solutions effectively to the team.

- Definition of Competency in IT Industry:

Competency in the IT industry is the ability to apply technical knowledge to real-world challenges. This involves understanding core concepts, solving practical problems, working with modern development tools, and collaborating with others in a team-oriented environment.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (programming, SDLC)

Problem-Solving and Analytical Thinking

Teamwork and Collaboration

Communication Skills

Adaptability to New Technologies

### 3. Industry Expectations:

- Technical Skills Expected from Graduates:

I expect graduates to be proficient in coding, familiar with software design patterns, and have a good understanding of databases and data structures. Experience with modern development tools like Git, Jenkins, or Jira is highly desirable.

- Critical Soft Skills for Success:

Beyond technical expertise, I value graduates who can work well in teams, communicate clearly, and manage time efficiently. In particular, problem-solving abilities are essential when it comes to working with clients and overcoming challenges in software development.

- Emerging Technologies/Skills:

Graduates should be familiar with cloud computing platforms and mobile app development. Knowledge of AI, machine learning, and blockchain is also becoming more important in our industry. Graduates should be adaptable and willing to learn these new technologies.

### 4. Evaluation of Current Graduates:

- How Well Do Graduates Meet Expectations:

Generally, Sri Lankan graduates possess a good academic foundation, but they often struggle when it comes to practical applications. They are often not fully prepared for the fast-paced, real-world software development environment and lack familiarity with industry-standard tools.

- Examples of Graduates Excelling or Falling Short:

Graduates who have gained practical experience through internships or worked on open-source projects tend to excel in our company. Those who only focus on academic projects tend to lack the problem-solving skills and familiarity with modern development practices we need.

- **Most Significant Gaps in Competencies:**

The largest gaps are in hands-on experience with software development tools, practical problem-solving abilities, and exposure to collaborative development environments. Many graduates need to improve their familiarity with Agile development practices and working in cross-functional teams.

#### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

I believe universities should focus more on practical development skills, including exposure to real-world software projects, Agile methodologies, and modern development tools. Curriculum updates should ensure that students are learning skills that are directly applicable to the IT industry.

- **Collaboration Between Academia and Industry:**

Absolutely, collaboration is essential. Universities should partner with industry professionals to design programs that provide real-world experience and ensure that students are learning relevant technologies. Internship programs, hands-on projects, and guest lectures would be beneficial in bridging the gap.

- **Additional Comments:**

I would suggest universities place more emphasis on soft skills like communication, time management, and teamwork, as these are just as important as technical skills in ensuring success in the workplace.

#### Participant 9: Interview Results

##### 1. Background Information:

- **Current Role and Experience:**

I am a Data Science Team Lead at an analytics consulting firm. I have over 10 years of experience in the IT industry, specializing in big data analytics, machine learning, and data-driven decision-making. My team and I develop AI-based solutions for clients across various industries.

- **Experience in Hiring and Assessment:**

I've been involved in hiring graduates for the past 4 years, primarily focusing on evaluating their coding skills, analytical thinking, and their understanding of data science principles, including machine learning algorithms and data processing techniques.

##### 2. Competency Definition and Scope:

- Essential Competencies for Success:

Graduates should have a solid understanding of machine learning algorithms, data manipulation techniques, and programming in languages like Python and R. It's also important that they are able to think critically and solve complex data problems.

- Definition of Competency in IT Industry:

Competency is the ability to use technical knowledge and apply it to solve real-world business problems. It includes not just coding skills, but also the ability to analyze data, understand business contexts, and communicate insights effectively.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (coding, machine learning, data processing)

Analytical Thinking and Problem-Solving

Communication Skills

Collaboration and Teamwork

Adaptability to New Technologies

### 3. Industry Expectations:

- Technical Skills Expected from Graduates:

Graduates should have strong proficiency in data analysis tools (e.g., Python, R, SQL), machine learning algorithms, and data visualization techniques. Familiarity with cloud platforms (AWS, Google Cloud) and big data technologies is a plus.

- Critical Soft Skills for Success:

Effective communication skills are essential for explaining complex data insights to non-technical stakeholders. Graduates should also be able to work well in teams, especially when collaborating with business analysts or product managers.

- Emerging Technologies/Skills:

Graduates should be familiar with emerging fields such as artificial intelligence, deep learning, and big data technologies. A basic understanding of cloud computing for data storage and processing is also becoming increasingly important.

### 4. Evaluation of Current Graduates:

- How Well Do Graduates Meet Expectations:

Many graduates are skilled in the basics of data analysis but often lack advanced knowledge in machine learning algorithms or real-world data problem-solving. They also often lack practical experience working with large datasets or cloud environments.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who have participated in internships or independent projects (e.g., Kaggle competitions) tend to excel, as they have gained practical exposure to real-world data challenges. Graduates who rely solely on theoretical knowledge often struggle to apply what they've learned to complex datasets.

- **Most Significant Gaps in Competencies:**

The most significant gap is the practical application of machine learning and data analytics tools. Graduates also need more experience with big data frameworks (e.g., Hadoop, Spark) and cloud platforms that are increasingly used in data science projects.

#### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

Universities should focus on real-world data analysis and machine learning projects. Graduates should be exposed to big data technologies and cloud computing early on in their studies.

- **Collaboration Between Academia and Industry:**

Yes, there is a strong need for collaboration. Academia should work closely with industry professionals to ensure that students are equipped with the most relevant and up-to-date skills. Industry partnerships could provide students with real-world data projects and internship opportunities.

- **Additional Comments:**

It's also crucial for universities to encourage students to think critically about how data science fits into broader business objectives. Graduates should be prepared to work on solutions that are aligned with the strategic goals of their organizations.

#### Participant 10: Interview Results

##### 1. Background Information:

- **Current Role and Experience:**

I am the Head of Software Development at a software outsourcing company. I have been in the IT industry for 13 years, specializing in full-stack development and agile project management. My role includes managing development teams, overseeing project lifecycles, and ensuring that we deliver high-quality software solutions on time.

- **Experience in Hiring and Assessment:**

I have been involved in hiring graduates for the past 6 years. I focus on assessing their programming skills, problem-solving abilities, and how well they can contribute to team dynamics and project delivery.

## 2. Competency Definition and Scope:

- Essential Competencies for Success:

Fresh graduates should be proficient in programming languages such as Java or JavaScript and have a solid understanding of web development frameworks. They must also demonstrate good problem-solving skills and the ability to collaborate in an agile team environment.

- Definition of Competency in IT Industry:

Competency refers to a graduate's ability to contribute to a team, solve technical problems efficiently, and apply their technical knowledge in real-world software development tasks. It also includes their ability to work in an agile environment and communicate effectively with clients and colleagues.

- Ranking of Competencies for Fresh Graduates:

Technical Skills (programming, web development)

Problem-Solving

Team Collaboration and Agile Practices

Communication Skills

Learning Ability and Adaptability

## 3. Industry Expectations:

- Technical Skills Expected from Graduates:

Graduates should have a solid understanding of full-stack web development, including both front-end and back-end technologies (e.g., HTML, CSS, JavaScript, Node.js). Familiarity with version control systems like Git is essential, and experience with cloud computing platforms is also highly valued.

- Critical Soft Skills for Success:

Graduates need to have strong teamwork skills, as they will often work with other developers, designers, and product managers. Effective communication and the ability to work in agile teams are also essential for success.

- Emerging Technologies/Skills:

Familiarity with emerging technologies like cloud-based platforms, DevOps tools, and automation technologies is becoming increasingly important. Graduates should also have an understanding of security practices in software development.

## 4. Evaluation of Current Graduates:

- **How Well Do Graduates Meet Expectations:**

Graduates generally perform well technically but often struggle with working in agile teams and managing real-world software development tasks. They often lack exposure to modern development practices like CI/CD and are not always proficient with cloud technologies.

- **Examples of Graduates Excelling or Falling Short:**

Graduates who have done internships or worked on projects during their academic years tend to excel, as they have hands-on experience working with modern tools and development processes. However, graduates who have only theoretical knowledge without real-world application tend to struggle in practical settings.

- **Most Significant Gaps in Competencies:**

The most significant gaps are in cloud computing and the application of agile methodologies in software development. Graduates also need to improve their familiarity with DevOps practices and working in cross-functional teams.

#### 5. Suggestions for Improvement:

- **Areas to Emphasize More in Curricula:**

I believe universities should focus more on real-world development practices such as full-stack development, version control systems, and agile methodologies. Exposure to cloud platforms and DevOps tools should also be included in the curriculum.

- **Collaboration Between Academia and Industry:**

Yes, universities should collaborate with industry to ensure that students are learning the latest technologies and working practices. Internship opportunities and industry-led workshops would provide graduates with practical experience that they can apply in the workplace.

- **Additional Comments:**

Universities need to emphasize the importance of working in teams and understanding how software development integrates with business needs. Graduates should be taught the value of delivering high-quality, secure, and scalable software solutions.

## APPENDIX B

### Fresh Graduates Interview Transcript

Participant 1: Graduate from the University of Colombo (Computer Science)

#### 1. Background Information:

"I graduated six months ago with a degree in Computer Science from the University of Colombo. I am currently working as a junior developer at a financial technology company. While my degree provided a solid theoretical foundation, I found the transition to industry challenging, particularly in adapting to the fast-paced environment and practical workflows."

How well do you think your degree prepared you for your current role?

"In terms of technical knowledge, my degree was highly valuable. However, I felt unprepared for real-world application, especially when it came to collaborative and agile workflows."

#### 2. Competency Understanding and Preparation: How do you define 'competency' in the context of your job?

"Competency, to me, means having the technical skills and problem-solving abilities to address challenges effectively while adapting to new technologies and environments."

Which competencies (from the list) do you think were most and least covered in your degree program?

"The program was excellent at covering foundational competencies like programming, algorithms, and data structures. However, it fell short in areas like project management, teamwork, and communication."

How well do you feel you were prepared in terms of technical skills?

"I felt confident in my coding skills, but I lacked experience with industry-standard tools like Git and version control systems."

How about soft skills like communication, teamwork, and problem-solving?

"Soft skills were minimally addressed. While problem-solving was emphasized through coursework, there was little focus on communication and teamwork. These were skills I had to develop quickly in my current role."

3. Experience with Industry Expectations: Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?

"Yes, I struggled with understanding agile methodologies and using collaborative tools like JIRA and Git. These were critical for team projects, and I had to learn them on the job."

How aligned were the skills taught in your degree program with the demands of your job?

"The technical skills taught were relevant, but the lack of practical, hands-on experience created a gap."

4. Gaps and Improvements: What do you think could have been done differently in your education to better prepare you for your career?

"Including more group projects and industry internships would have provided valuable practical experience."

Are there any specific competencies or skills you wish had been emphasized more during your studies?

"Project management, client communication, and exposure to industry-standard tools like Git and cloud platforms could have been emphasized more."

5. Future Recommendations: What advice would you give to current students or academic institutions to better align education with industry needs?

"My advice to students is to seek internships and participate in hackathons to gain practical experience. For universities, integrating industry collaboration into curricula would be beneficial."

Do you believe additional industry exposure or internships during your degree would have been beneficial?

"Absolutely. Industry exposure through internships or live projects would have significantly reduced the learning curve when transitioning to work."

Is there anything else you would like to share regarding your transition from education to employment?

"The transition was tough but rewarding. Building both technical and soft skills during university would have made it smoother."

Participant 2: Graduate from SLIIT (Software Engineering)

1. Background Information: "I graduated last year with a degree in Software Engineering from SLIIT. Currently, I'm working as a backend developer at a startup."

How well do you think your degree prepared you for your current role? "It prepared me well for technical challenges but left gaps in soft skills and understanding business contexts."

2. Competency Understanding and Preparation: How do you define 'competency' in the context of your job? "Competency is the ability to effectively solve problems, meet deadlines, and collaborate with diverse teams."

Which competencies (from the list) do you think were most and least covered in your degree program? "The program focused heavily on technical aspects like coding and software development methodologies. However, client communication and teamwork were not covered adequately."

How well do you feel you were prepared in terms of technical skills? "I was well-prepared for coding and database design but lacked exposure to emerging technologies like DevOps and cloud computing."

How about soft skills like communication, teamwork, and problem-solving? "Soft skills like communication and teamwork were significantly underemphasized. I had to learn these through trial and error at work."

3. Experience with Industry Expectations: Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?

"I had to quickly develop my understanding of business requirements and improve my communication skills to work effectively with clients."

How aligned were the skills taught in your degree program with the demands of your job?

"The alignment was decent for technical skills but inadequate for soft skills and practical applications."

4. Gaps and Improvements: What do you think could have been done differently in your education to better prepare you for your career?

"Incorporating more real-world projects and workshops led by industry professionals would have been helpful."

Are there any specific competencies or skills you wish had been emphasized more during your studies?

"Interpersonal skills, client handling, and exposure to tools like Docker and Kubernetes should have been emphasized more."

5. Future Recommendations: What advice would you give to current students or academic institutions to better align education with industry needs?

"Students should focus on building soft skills alongside technical expertise. Universities should collaborate with industry to offer internships and project-based learning."

Do you believe additional industry exposure or internships during your degree would have been beneficial?

"Yes, internships would have provided the practical experience needed to bridge the gap between academia and industry."

Is there anything else you would like to share regarding your transition from education to employment?

"My transition was smoother once I focused on improving my communication skills and learning industry tools."

Participant 3: Graduate from the University of Moratuwa (Information Technology)

Background Information: "I completed my degree in Information Technology at the University of Moratuwa a year ago. I currently work as a systems analyst for a multinational software solutions company. While the degree equipped me with a strong technical foundation, I found certain aspects of industry workflows unfamiliar."

How well do you think your degree prepared you for your current role?

"The theoretical knowledge provided by the program was excellent, but there was a noticeable gap in practical skills and exposure to current industry trends."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job?

"Competency is a combination of technical expertise, critical thinking, and the ability to communicate effectively with stakeholders to deliver solutions."

Which competencies (from the list) do you think were most and least covered in your degree program?

"The program focused heavily on technical areas such as programming and system design, but skills like client communication, teamwork, and understanding business needs were underrepresented."

How well do you feel you were prepared in terms of technical skills?

"I was well-prepared in coding and database management but lacked exposure to tools like Docker and CI/CD pipelines."

How about soft skills like communication, teamwork, and problem-solving?

"There were limited opportunities to enhance these skills during the degree program, so I had to develop them through my internship and current role."

Experience with Industry Expectations:  
Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?

"Yes, I had to quickly get familiar with collaborative development practices and tools like Git, as well as refine my presentation skills for client meetings."

How aligned were the skills taught in your degree program with the demands of your job?

"While the technical skills were aligned, there was a gap in practical experience and soft skills, which took time to bridge."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career?

"Incorporating more group projects that mimic real-world scenarios and providing access to industry-standard tools would have been helpful."

Are there any specific competencies or skills you wish had been emphasized more during your studies?

"Business communication, project management, and hands-on experience with cloud platforms like AWS or Azure should have been emphasized."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?

"Students should actively pursue internships, even during academic terms, to gain practical experience. Universities should collaborate more with industry to introduce workshops and certification programs."

Do you believe additional industry exposure or internships during your degree would have been beneficial?

"Absolutely. An internship or co-op program would have provided invaluable insights and skills."

Is there anything else you would like to share regarding your transition from education to employment?

"The transition was smoother due to my proactive efforts during university, such as participating in hackathons and online certifications. However, a curriculum more aligned with industry expectations would have made the journey even easier."

Participant 4: Graduate from the University of Peradeniya (Computer Science)

Background Information:

"I graduated two years ago with a degree in Computer Science from the University of Peradeniya. I am currently working as a software engineer at a mid-sized IT company focusing

on healthcare solutions. While my degree gave me a broad understanding of computer science principles, I found myself needing to learn a lot on the job."

How well do you think your degree prepared you for your current role?

"The degree program provided a strong theoretical foundation, but it didn't prepare me fully for the fast-paced and practical demands of the industry."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job?

"To me, competency means the ability to combine technical skills with practical problem-solving and adaptability to tackle complex challenges in a real-world setting."

Which competencies (from the list) do you think were most and least covered in your degree program?

"The program excelled in teaching programming concepts, algorithms, and data structures, but it lacked emphasis on real-world application areas like version control, DevOps practices, and project management."

How well do you feel you were prepared in terms of technical skills?

"I was prepared in areas like coding and understanding system design, but I struggled with frameworks and tools that are widely used in the industry, such as containerization technologies."

How about soft skills like communication, teamwork, and problem-solving? "Problem-solving was well-covered through coursework, but communication and teamwork received minimal attention."

Experience with Industry Expectations:  
Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?  
"Yes, I needed to quickly learn how to collaborate effectively in team environments and familiarize myself with agile development processes."

How aligned were the skills taught in your degree program with the demands of your job?  
"The technical foundation was useful, but there was a lack of alignment in terms of practical tools, methodologies, and soft skills."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career?  
"More hands-on projects, industry internships, and exposure to modern tools and technologies would have made a significant difference."

Are there any specific competencies or skills you wish had been emphasized more during your studies?

"Teamwork, effective communication, and experience with tools like GitHub, Kubernetes, and AWS should have been better integrated into the curriculum."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?  
"Students should take the initiative to engage in side projects, internships, and industry certifications. Universities should involve industry professionals in the curriculum design process."

Do you believe additional industry exposure or internships during your degree would have been beneficial?  
"Yes, internships would have provided the exposure and confidence needed to transition smoothly into the workforce."

Is there anything else you would like to share regarding your transition from education to employment?  
"The transition was challenging but manageable with self-learning and support from colleagues. Universities should consider incorporating more practical elements into their programs to ease this transition."

Participant 5: Graduate from South Eastern University (Software Engineering)

Background Information:

"I graduated three years ago in Software Engineering from South Eastern University. I'm currently employed as a quality assurance (QA) engineer in a mid-sized IT firm. My degree gave me a basic understanding of software development, but I felt unprepared for the QA-specific processes I needed at work." How well do you think your degree prepared you for your current role? "It gave me a good starting point in programming concepts, but it didn't really prepare me for the testing and documentation side of things."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job? "Being competent means knowing how to do your tasks well and being able to learn and adjust when something new comes up." Which competencies (from the list) do you think were most and least covered in your degree program? "Most of the focus was on coding and algorithms, which helped. But testing, debugging, and working in a team environment weren't covered enough." How well do you feel you were prepared in terms of technical skills?

"Technically, I knew how to code, but I didn't know about the specific tools like Selenium or the importance of writing proper test cases." How about soft skills like communication, teamwork, and problem-solving? "Teamwork and communication were almost non-existent in the program. Problem-solving was there, but only in a theoretical sense, not in group settings."

Experience with Industry Expectations:  
Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop? "Yes, I had to quickly learn how to use QA tools, work with developers, and communicate findings effectively. These skills weren't part of my degree." How aligned were the skills taught in your degree program with the demands of your job? "The technical foundation was useful, but there was a big gap in practical applications and understanding QA-specific processes."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career? "More focus on quality assurance practices, internships in testing roles, and exposure to testing tools would have helped a lot." Are there any specific competencies or skills you wish had been emphasized more during

your studies?  
"I wish the degree had covered test automation, writing detailed bug reports, and understanding project life cycles better."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?  
"Students should try to work on side projects or internships focused on industry-specific skills. Universities should include QA and testing as core subjects."  
Do you believe additional industry exposure or internships during your degree would have been beneficial?  
"Yes, internships would have shown me what QA roles actually entail and how the industry works."  
Is there anything else you would like to share regarding your transition from education to employment?

"The transition was tough because QA isn't a major focus in most degree programs. Adding it as a specialization or elective would be very helpful for future students."

Participant 7: Graduate from Horizon Campus (Information Technology)

Background Information:

"I graduated two years ago with a degree in Information Technology from Horizon Campus. I'm now working as a cloud solutions associate at an IT consultancy firm. The degree gave me a good start in understanding basic IT concepts, but honestly, there were gaps when it came to modern tools and technologies."

How well do you think your degree prepared you for your current role?

"It covered the basics well, but for cloud-specific work, I had to take external courses to fill in the gaps."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job?  
"Competency is about having the skills and confidence to solve technical problems effectively, especially under tight deadlines."  
Which competencies (from the list) do you think were most and least covered in your degree program?

"The program did a good job teaching programming and databases, but there was very little about cloud platforms, cybersecurity, or even basic troubleshooting practices."  
How well do you feel you were prepared in terms of technical skills?

"I knew how to code and work with databases, but I didn't know anything about cloud services like AWS or Azure, which are essential for my current role." How about soft skills like communication, teamwork, and problem-solving? "Communication and teamwork weren't part of the curriculum. We mostly worked alone on assignments. Problem-solving was addressed in technical terms but not in real-world scenarios."

Experience with Industry Expectations:  
Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?  
"Yes, I had to quickly learn how to deploy and manage cloud infrastructure and improve my client interaction skills."  
How aligned were the skills taught in your degree program with the demands of your job?  
"The theoretical knowledge was somewhat useful, but the practical skills required for cloud computing were completely missing."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career?  
"Adding cloud computing fundamentals, more lab-based practical work, and better exposure to industry projects would have made a huge difference."  
Are there any specific competencies or skills you wish had been emphasized more during your studies?

"I wish the program had focused more on cloud services, project management, and handling real-world IT challenges like security breaches."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?  
"Students should explore online certifications while studying. Universities should bring in industry experts to teach the latest technologies."  
Do you believe additional industry exposure or internships during your degree would have been beneficial?  
"Absolutely. Working on real-world cloud projects during my degree would have made my transition to work much easier."  
Is there anything else you would like to share regarding your transition from education to employment?

"It was a steep learning curve, especially with cloud technologies, but self-study and supportive colleagues helped me bridge the gap."

Participant 8: Graduate from the University of Ruhuna (Computer Science)

Background Information:

"I graduated last year with a degree in Computer Science from the University of Ruhuna. Now, I work as a mobile app developer for a local startup. While I enjoyed my degree, I felt it was a bit outdated compared to what the industry demands today." How well do you think your degree prepared you for your current role?

"The degree gave me a solid grasp of programming basics, but I had to learn mobile development frameworks like Flutter and React Native on my own."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job?

"Competency is being able to create functional solutions efficiently, whether it's writing code, debugging, or collaborating with a team."

Which competencies (from the list) do you think were most and least covered in your degree program?

"The program was strong in teaching core concepts like algorithms and object-oriented programming. However, there was no focus on UX/UI design or frameworks used in mobile development."

How well do you feel you were prepared in terms of technical skills?

"I was okay with general coding but completely unprepared for modern app development tools and libraries."

How about soft skills like communication, teamwork, and problem-solving?

"Soft skills were not emphasized at all. I had to build communication and teamwork skills through part-time jobs and extracurricular activities."

Experience with Industry Expectations:

Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?

"Yes, I had to pick up UI design principles, learn how to optimize app performance, and get comfortable with team-based coding platforms like GitHub."

How aligned were the skills taught in your degree program with the demands of your job?

"The technical foundation was there, but the lack of modern tools and industry alignment made it tough to transition smoothly."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career?  
"Including industry-relevant tools, frameworks, and group-based app development projects would have been really helpful."  
Are there any specific competencies or skills you wish had been emphasized more during your studies?  
"I wish they had taught mobile development frameworks, UI/UX design, and how to work in agile environments."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?  
"Students should start learning industry tools early and join tech communities for exposure. Universities should revamp their curriculum to include modern technologies and practical skills." Do you believe additional industry exposure or internships during your degree would have been beneficial?  
"Of course. Working on real-world mobile app projects during an internship would have saved me a lot of trial and error."  
Is there anything else you would like to share regarding your transition from education to employment?  
"The first few months were overwhelming, but once I mastered the tools and frameworks on the job, things became smoother. Universities should prepare students better for this kind of transition."

Participant 9: Graduate from the University of Kelaniya (Information Systems)

Background Information:

"I graduated two years ago with a degree in Information Systems from the University of Kelaniya. Currently, I'm a business analyst at a multinational corporation. While my degree focused a lot on the theoretical side, I found that the job required more hands-on skills and business understanding."

How well do you think your degree prepared you for your current role?

"It helped me understand the basics of how systems work, but I felt underprepared for real-world tasks like writing requirements documents or facilitating stakeholder meetings."

Competency Understanding and Preparation:  
How do you define 'competency' in the context of your job?  
"Competency is the ability to analyze business needs and translate them into technical solutions while managing people and processes efficiently."  
Which competencies (from the list) do you think were most and least covered in your degree program?  
"The degree program covered technical skills like database design well. However, it didn't touch on softer areas like negotiation or understanding business strategies."  
How well do you feel you were prepared in terms of technical skills?  
"I was good with technical concepts like SQL and system modeling, but I lacked experience in integrating business processes with IT systems."  
How about soft skills like communication, teamwork, and problem-solving?  
"Soft skills were rarely emphasized. I had to learn how to manage stakeholders and communicate effectively during my first few months on the job."

Experience with Industry Expectations:  
Upon entering the workforce, were there any competencies you found you were lacking or that you had to quickly develop?  
"Yes, I had to quickly pick up skills in business process modeling, stakeholder management, and using tools like JIRA and Confluence."  
How aligned were the skills taught in your degree program with the demands of your job?  
"The technical foundation was there, but the practical business aspects and real-world tools were missing."

Gaps and Improvements:  
What do you think could have been done differently in your education to better prepare you for your career?  
"More case studies, internships, and opportunities to work with actual clients would have made the transition easier."  
Are there any specific competencies or skills you wish had been emphasized more during your studies?  
"Yes, the program should have included courses on business communication, stakeholder analysis, and agile project management."

Future Recommendations:  
What advice would you give to current students or academic institutions to better align education with industry needs?  
"Students should get internships in roles that combine technical and business aspects."

Universities need to incorporate more practical projects and collaborations with companies."

Do you believe additional industry exposure or internships during your degree would have been beneficial?

"Absolutely. Internships would have given me the real-world experience that the degree lacked." Is there anything else you would like to share regarding your transition from education to employment?

"The biggest challenge was understanding how to align IT solutions with business goals. More exposure to this during my degree would have made the transition much smoother."

Participant 10: Graduate from Informatics Institute of Technology (IIT) (Software Engineering)

Background Information:

"I graduated six months ago with a degree in Software Engineering from IIT. I currently work as a full-stack developer for a software outsourcing company. The program had its strengths, but it didn't fully prepare me for the demands of the job." How well do you think your degree prepared you for your current role?

"It gave me a decent understanding of programming concepts, but it didn't provide enough exposure to real-world applications and workflows."

Competency Understanding and Preparation:

How do you define 'competency' in the context of your job?

"Competency is the ability to create efficient, scalable solutions while adapting to different technologies and team dynamics."

Which competencies (from the list) do you think were most and least covered in your degree program?

"The degree was strong in teaching coding fundamentals and database management, but areas like system design, debugging, and code optimization were left out."

How well do you feel you were prepared in terms of technical skills?

"I was comfortable with basic programming but had to learn frameworks like Spring Boot and tools like Docker on my own."

How about soft skills like communication, teamwork, and problem-solving?

"There was little emphasis on communication and teamwork. Problem-solving was encouraged, but it wasn't connected to collaborative scenarios."

Experience with Industry Expectations:

Upon entering the workforce, were there any competencies you found you were lacking

or that you had to quickly develop?

"Yes, I had to quickly learn how to write clean, maintainable code and manage code repositories on platforms like GitHub."

How aligned were the skills taught in your degree program with the demands of your job?

"The alignment was limited. I had to close the gap between academic knowledge and practical skills through self-learning and training at work."

Gaps and Improvements:

What do you think could have been done differently in your education to better prepare you for your career?

"More hands-on projects, better exposure to frameworks, and courses on software architecture and testing would have been helpful."

Are there any specific competencies or skills you wish had been emphasized more during your studies?

"Yes, I wish we had learned more about DevOps practices, debugging strategies, and collaboration tools like JIRA."

Future Recommendations:

What advice would you give to current students or academic institutions to better align education with industry needs?

"Students should invest time in internships and online courses. Universities should incorporate industry-aligned modules and host workshops with tech experts."

Do you believe additional industry exposure or internships during your degree would have been beneficial?

"Absolutely. An internship would have bridged the gap between theory and practice."

Is there anything else you would like to share regarding your transition from education to employment?

"The transition was manageable, but it would have been smoother with better preparation in practical coding and teamwork. Universities need to rethink how they prepare students for industry."