Harmonizing Policies for Employment Generation in the ICT Industry

Research conducted as a part of Daayitwa Nepal Public Policy Fellowship 2023, in collaboration with the Ministry of Communication and Information Technology (MoCIT)

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Abstract

Nepal has, for years, experienced higher imports than exports. The ICT industry has the potential to boost the country's exports if robust government policies are drafted. This research aimed at delving into policy disharmonies within Nepal's ICT industry, particularly focusing on inconsistencies in tax provision and the absence of precise definitions. These issues underscore the need for comprehensive policy reforms. The research set objectives to identify various challenges faced by the industry in terms of employment generation, including a skills gap, higher turnover, a shortage of senior workforce, and policy gaps. To address these issues, the study proposes actionable policy recommendations. The findings emphasize the crucial role of policy consistency and collaborative frameworks for advancing the industry and addressing employment-related challenges within the ICT industry.

List of Acronyms and Abbreviations

DNF	Digital Nepal Framework
GoN	Government of Nepal
ICT	Information and Communication Technology
IMS	Information Management System
IP	Intellectual Property
ITeS	Information Technology Enabled Services
MoCIT	Ministry of Communication, Information and Technology
MoICS	Ministry of Industry, Commerce and Supplies
NEA	Nepal Electricity Authority
NTIS	Nepal Trade Integration Strategy
OCR	Office of the Company Registrar
SEZ	Special Economic Zone

1. Introduction

1.1 Background

As the world increasingly relies on technology for different facets of life and business, the global ICT industry is anticipated to experience substantial growth in the upcoming years. The industry has witnessed rapid growth over the years, however in 2022 due to the worsening global economic conditions and tightening policies, it faced a slowdown in turnover growth. In addition to these external factors, internal factors such as lack of labor and skilled labor are having detrimental effects on the ICT industry. The European Commission has projected that the EU will face a shortage of eight million ICT specialists by 2030. Despite the slow turnover rate in 2022, the International Data Corporation has predicted that the industry to have steady growth through 2027. The total spending on ICT was $4.7 trillion in 2022, with banks, government agencies, and telecommunication emerging as the top three spenders.

The growth of the ICT industry not only signifies technological advancement but also has a significant impact on job creation. The transformative nature of the ICT industry is reshaping work dynamics, creating job opportunities, and fostering a global labor market. Contrary to the misconception that ICT eliminates jobs, it actually generates employment within the industry and extends its positive effects on other industries. To harness the full potential of the ICT industry's impact on employment, policymakers in developing economies must pay close attention when creating stronger policies.

Policymakers across various ministries must coordinate in drafting and implementing policies. Uniform policies across sectors reduce obstacles for companies, assisting in smoother operations and increased productivity. Robust national policies promote confidence among investors, creating an environment conducive to the generation of employment opportunities.

1.2 ICT Industry in Nepal

The foundation of Nepal's ICT Industry was laid in 1931 with the establishment of the country's first telecommunication service. In 19651, Radio Nepal, the country's first radio station commenced its broadcasting, expanding the reach of communication. A significant development occurred in 1971 when Nepal acquired its first computer. The computer was used in processing census data for the government, marking the initiation of the computing era. In 1982, Nepal received its first foreign direct investment in the ICT sector for Data Services International, a software company. Another significant year was 1993 when the Internet was introduced through a venture collaboration between the Royal Nepal Academy of Science and Technology (RONAST) and the private company Mercantile Office Systems (MOS).

As the term "ICT" has a broad scope, this report alights with the classification outlined in the Industrial Enterprise Act of 2020. According to this act, the ICT industry is categorized into three distinct industries:

Informational Technology Industries:

a) Technology Park

b) IT Park

c) Biotech Park

d) Software development

e) Computer and related services

f) Data Processing

g) Cyber Café

h) Digital Mapping

i) Business Process Outsourcing (BPO), Knowledge Process Outsourcing (KPO)

j) Data Centre, Data mining, Cloud Computing

k) Digital Signature certifying agency.

l) Web portal, web designing service, web hosting, online classified advertising services.

Informational Technology-Based Industries

a) Internet Service Provider (ISP)

b) Telephone, mobile phone, mobile satellite phone operator service

c) Teleport service

d) Establishment and operation of satellites, the establishment of satellite broadcasting center, VSAT service

e) Broadband infrastructure, telecom tower, optical network, satellite network

f) Social networking, online message, video call, conference

Dissemination Technology-Based Industries

a) FM radio, digital radio service

b) Digital land surface television, satellite television, cable television

c) IP television, online service

d) Digital cable television, network, direct-to-home (DTH) satellite service, MMDS network, digital television (DTTV) network

e) Recording studio, broadcasting studio

f) Print media industries, audio-visual material production industries, advertisement product industries

g) Production of motion pictures or documentaries

In alignment with the global trends, Nepal's ICT industry has also been on the rise in the past few years. This growth is marked by an increasing number of startups and the establishment of foreign corporate subsidiaries within the nation. Consequently, the ICT industry has emerged as one of Nepal's most rapidly growing industries. Notably, during the challenging fiscal year of 2020-21 when other industries experienced declines, the ICT industry contributed nearly 17 percent of Nepal's total export earnings. Furthermore, it has now become the second-largest source of employment generation within the country, following the tourism sector.

A notable sector of the ICT industry that has demonstrated significant expansion is IT export services. A comprehensive study conducted by the Institute for Integrated Development Studies (IIDS) in 2023 revealed that Nepal's IT export industry reached a valuation of USD 515 million in 2022, which is an increase of around 64.2 percent from the previous year. Additionally, the study presented that the IT export contributed to 1.4 percent of Nepal's GDP and contributed to 5.5 percent of the foreign reserves. These findings highlight how the ICT industry can play a pivotal role in Nepal's economic growth. According to the Industrial Statistics published by the Ministry of Industry, Commerce and Supplies (MoICS), a total of 11 new industries were registered under the Information Technology-based category in the fiscal year of 2078-79. The same report also indicates that these industries would create 889 jobs.

As the industry continues to experience growth, it requires the adoption of robust policies and government support to achieve its full potential. Nepal's government has not kept up with the rapidly changing industry, which is different from traditional ones. To help the industry thrive, governmental policies need to be consistent. Research by Yoon J. et al. (2017) shows that consistent policies, especially in emerging industries, can boost technological competitiveness. Government bodies should prioritize coordination among each other assisting in consistency between policies of different ministries. It will ensure the implementation of policies that can benefit companies through incentives like tax breaks which will assist in employment generation and promote industry growth.

As ICT firms face challenges arising from policy disharmony and inconsistencies, there exists a lack of incentive for these firms to expand their employment opportunities within the industry. This research aims to address the issue of policy inconsistencies related to the ICT industry that may hinder employment generation. Furthermore, the research aims to seek insights into the challenges that hinder ICT firms from reaching their maximum potential. Through the utilization

of document analysis and key informant interviews, this paper aims to achieve its research objectives.

2. Literature Review

2.1 National Information and Communication Technology Policy 2015 (2072)

The development of this field was paved by the formulation of the National Communication Policy 1992. It was later followed by the Telecommunication Act and the Telecommunication Regulation in 1997. Later, in 2000 the first major policy for Information Technology was formulated aimed at the development and growth of the IT sector. The policy was revised again in 2010. As per the need to integrate Communication and Information Technology, the government of Nepal formulated the National Information and Communication Technology Policy 2015.

The ICT policy was devised with a vision and mission to transform Nepal's society and economy into a knowledge-based one while strengthening this sector as an important contributor to Nepal's development. The policy outlines several ambitious goals aimed at advancing Nepal's digital landscape. The goals focus on a range of areas including enhancing the overall ICT industry and increasing digital awareness and literacy among citizens throughout the country by extending accessibility through broadband expansion to every corner. Additionally, the policy strives to bolster the contribution of ICT to the GDP, promote e-procurement practices, and provide support for innovation and incubation.

The policy has established strategies for the integration of ICT into various sectors. The sectors covered by the policy include:

a. Human Resources

b. Education and Research and Development

c. Government Services

d. Small and Medium-sized Enterprises (SMEs)

e. Agriculture

f. Health

g. Tourism

h. Environment and Natural Resources

In the above section, Nepal's ICT Policy 2015 was reviewed, which acts as a framework governing the ICT sector. The policy advocates for developing the nation into a knowledge-based society and

strengthening the industry to be one of the largest contributors to the economy. Similar to sectors such as manufacturing and agriculture, the information and technology industry also falls under the regulatory framework of the Ministry of Industry, Commerce and Supplies (MoICS). Given that MoICS policies and regulations are applicable to the ICT industry, it becomes important to conduct an assessment of these policies. Furthermore, in order to gain an understanding of policies related to the ICT sector from various ministries, this study also delves into the Industrial Enterprise Act 2020, formulated by MoICS.

2.2 Industrial Enterprise Act 2020 (2076)

The act was published under the Ministry of Industry, Commerce, and Supplies. It was proposed with the aim of creating fair competition among domestic producers to create a production-oriented economy. It also focuses on encouraging exports by creating an investment-friendly environment and facilitating industries. The act includes the definition and classification of different industries. Along with procedures for registration and regulations for the industries.

Following are the provisions within IEA relevant to the Information Communication Technology industry:

Industry	Provisions
Any Industry	· 25% exemption on the rate of income tax on royalty income earned by any person from exporting an IP. · 50% exemption on the rate of income tax on income earned by any person from selling by way of transfer of an IP right.
Software development, data processing, cyber-café, and digital mapping	· 50% income tax exemption if established inside Technology and IT Park
IT Industry	· 300 or more direct employees: 15% of tax leviable on the income · 1200 or more direct employees: 25% of tax leviable on the income · An additional 15% if half of the employees are women, Dalit, or persons with disabilities.

Any industry	· Deduction of expenses up to 50% of the adjusted taxable income, for expenses incurred for enhanced entrepreneurship, research, and development and creation of new technology for enhancing the productivity
Industries of national priority	· Provide additional facilities and concessions

In the following section, we have examined the Digital Nepal Framework (DNF) which is a blueprint introduced by MoCIT. It outlines a strategic vision of integrating IT into various sectors with the aim of leveraging IT for rapid economic growth.

2.3 Digital Nepal Framework (DNF)

The Framework was released by the MoCIT in 2019. It provides a blueprint for digital initiatives for leveraging IT for rapid economic growth. The initiatives within this program are dedicated to finding innovative solutions that address societal challenges while utilizing fewer resources. Additionally, with this framework, the government aims to identify and increase possibilities for Nepal to engage in the global economy. It includes 80 different initiatives for integrating IT into 8 different sectors. The table below exhibits eight sections and provides a concise overview of the planned initiatives.

Sectors	Focus Areas
Digital Foundation	· Digital Connectivity · Digital Skills · Digital Governance
Agriculture	· Leveraging mobile applicants to provide information related to weather, market information, and rental services for machinery and tools. · Using technologies like satellites, drones, and soil sensors to monitor crop growth and ensure maximization of resources. · Increasing limitation on financing to farmers through digital payments and crowdsourcing.

	· Automation of the agriculture process to reduce the reliability of labor.
Health	· Digital Health · Hygiene and Sanitation Awareness through digital technologies · Leveraging the latest HIM (Health Information Management)
Education	· Technology-based Teacher training and tracking of performance. · Integrate digital technology in teaching. · High-density networks at urban schools and universities. · Utilize Massive Open Online Courses (MOOCs)
Energy	· Power generation and rural electrification · Integration of digital technologies like smart meters and smart payment collection. · Digitalized streamline licensing. · Digitalization of NEA
Tourism	· Digitize the immigration and visa process. · Integration of GPS to track road conditions for tourists. · Install Wi-Fi Hotspots

	· Equip better tourism information
Finance	· Adaptation of digital transactions and payments. · Initiate digital payment systems. · Enhancement of e-commerce and ITeS ecosystem · IMS of migrant workers
Urban Infrastructure	· Installation of Water and Sanitation Information System (SIBBS) · Integration of sensors and RFID on public transport systems. · Water ATMs · Adaption of an Intelligent Waste Management System

3. Research Objectives

After reviewing the above-mentioned policies and acts, it becomes evident that several provisions exist to promote industry growth and employment generation. However, the consistency of these provisions across various government policies impacting the industry is crucial for their effective implementation. While notable provisions have been integrated, there is a lack of newer provisions tailored to the rapidly evolving industry environment.

To achieve the intended goals, this research established the following objectives:

a. To identify the discrepancies and inconsistencies within existing policies related to the ICT industry.

b. To understand the challenges faced by the ICT industry in relation to employment generation.

c. To design policy recommendations for the development of the ICT industry and increasing employment within the industry.

4. Research Questions

In line with the research objectives, the following questions are posed to guide the research:

a. What are the discrepancies and inconsistencies that exist between ICT policy and the Industrial Enterprise Act?

b. What are the factors affecting employment generation in the ICT industry?

c. What potential policies can be proposed to foster industry growth leading to increased employment?

5. Research Methodology

This study is qualitative research aimed at identifying discrepancies in policies related to the ICT industry and challenges the industry faces, with a focus on employment generation. For this, I have utilized two distinct qualitative approaches: Document Analysis and Interviews with stakeholders.

· Document Analysis

This includes the Analysis of IT Policy 2015 under the Ministry of Communication and Information Technology and the Industrial Enterprise Act 2020 under the Ministry of Industry, Commerce, and Supplies. Additionally, the Digital Nepal Framework, a blueprint published by the government and Prime Minister Employment Program was also reviewed.

· Key Informant Interviews

To gain deeper insights from both the government and private sectors, I conducted face-to-face semi-structured interviews with key informants. The data collection approach involved the use of a sampling method. This method aimed to select a group of key informants from both the government and private sectors who were relevant to the research objectives.

For the sampling method, a purposive technique was employed. This technique was chosen with the specific purpose of selecting participants who are experts from diverse sub-sectors of the sector. It will assist in gaining a wider perspective of the industry's perspectives and challenges. Additionally, the snowball technique was utilized to complement the data collection method and diversity of the participants. This technique helped the identification of additional participants as the study progressed.

Government	MoCIT	2

	Department of Information Technology	1
Private	Former Vice-chair High Commission for IT	1
	Cloud Computing	1
	Data Processing	1
	Software Development	2
	BPO	1
	Internet Service Provider (ISP)	1

6. Findings and Analysis

The research study was conducted to identify any inconsistency among policies related to the ICT industry and understand the challenges faced by the industry. This section presents the analysis of findings identified through document analysis and interviews with the key stakeholders of the industry. The analysis is divided into three parts, policy disharmonies, industry challenges, and required policy support.

6.1 Disharmony in the Policies

By carefully analyzing the documents and through interviews conducted with the key informant notable inconsistencies within policies and acts were identified. The following table illustrates a notable inconsistency between the Industrial Enterprise Act and the Income Tax Act.

	Industrial Enterprise Act	Income Tax Act
	15% tax deduction if providing direct employment to 300 or more Nepali citizens	10% tax deduction if providing direct employment to 100 or more Nepali citizens
	25% tax deduction if providing direct employment to 1,200 or more Nepali citizens	20% tax deduction if providing direct employment to 300 or more Nepali citizens

Tax Concessions based on Employment Provided	Additional 15% tax deduction if at least 50% of employees are: a) Women b) Dalit c) People with disabilities	25% tax deduction if providing direct employment to 500 or more Nepali citizens
		30% tax deduction if providing direct employment to 1000 or more Nepali citizens
		Additional 10% tax deduction if direct employment provided to 100 or more including at least 33% of: a) Women b) Dalit c) People with disabilities

In addition to the tax rate discrepancy between the Industrial Enterprise Act and the Income Tax Act, two further issues have been identified.

a) Lack of precise definitions

Firstly, the respondents highlighted that despite the existence of provisions incentivizing employment growth, the absence of precise definitions of certain terms such as direct employment has hindered its implementation. A respondent emphasized the need to differentiate the difference between labor characteristics in the manufacturing industry and the information technology industry.

The nature of work in manufacturing and IT companies differs significantly. In manufacturing, the focus is on physical tasks related to producing tangible goods, such as assembling products or operating machinery. In contrast, the ICT industry revolves around knowledge-based work including tasks related to software development and technical support. Manufacturing companies typically have stricter time schedules that employees must follow. These schedules are often fixed, and workers are expected to be present at the workplace during specific hours each day. On the other hand, the ICT industry offers greater flexibility. Employees in this sector can work remotely, without having to be present in the office and follow strict daily hours.

The Industrial Enterprise Act has not mentioned the definition of the term "direct employment". The Income Tax Act has defined "employment" as any kind of past, present, and future employment but has not provided a further definition of "direct employment". The term needs to have a thorough and contextual definition that fits the nature of the industry's work, as mentioned earlier each industry has a different nature of work. It will prevent ambiguity and ensure the incentives are appropriately applied to employees who directly contribute to the industry's growth and productivity.

b) Limited to Information Technology Industries

As mentioned in the earlier section, the industry as a whole is categorized into three segments: Information Technology, Information Technology-based, and Dissemination Technology-based industries. However, the tax concession provisions mentioned above are limited to information technology industries only. There exists a necessity to broaden the scope of these provisions to incorporate enterprises spanning the other two industries as well.

6.2 Industry's Challenges in Generating Employment

Currently, the ICT industry encounters numerous challenges. However, in alignment with our research objectives, this section explains the specific challenges faced by the ICT industry when recruiting skilled workers. The problem of hiring skilled manpower in the industry is one of the factors slowing the industry's growth and ultimately the further employment generation in the country.

6.2.1 Skills Gap

Among the interviewed key informants, six out of seven stated the lack of required skills among the talents in this industry. The fresh graduates showed a lack of soft skills as well as technical skills. As students, they are seen focusing on their curriculum and not staying updated with the changing advancements in the field. Consequently, fresh IT graduates are observed to lack industry readiness and have no working experience despite attaining degrees. Organizations also face problems in recruiting people possessing certain skills demanded by their clients. This challenge is the case for companies working with international clients who expect the team to have updated knowledge and skills. Companies have a difficult time training students to align with client prerequisites, which results in delays and missed opportunities. Due to the lack of skilled labor in the local market, respondents involved in Business Process Outsourcing (BPO) disclosed that they even hire people from other countries, especially from India to fulfill certain tasks and projects.

One of the interviews pointed out that the industry is at fault for expecting freshies to be industry-ready, suggesting that students should not be expected to have all the skills the industry requires. Conversely, another respondent mentioned an opposing view emphasizing the investment made by graduates in acquiring their degree, they should be at least ready for entry-level positions.

6.2.2 High Turnover

The retention rate indicates the percentage of employees who remain at the organization for a specific time period. All of the respondents agreed to have a low retention rate within the industry. According to the respondents, laborers are observed to work on average for only six months to a year before leaving their jobs. Skilled laborers are moving to other companies that offer more benefits to them. Not just between local companies, but the lower retention rate is also due to the flexibility that freelancing provides, along with higher compensation. High turnover is not only an indicator of the poor working environment within an organization but also other externalities. Skilled laborers are choosing to move abroad, where their compensation is higher, along with a higher standard of living.

6.2.3 Limited Senior Workforce

Even though the industry does not face many challenges in recruiting entry-level talents, there is a significant gap between middle and top-level positions. As the laborers are leaving the company and the country, companies have a difficult time appointing laborers in senior positions. According to one respondent, there are very few experienced talents in the industry, for whom the local companies have to fight for. The major cause of this is brain drain. The absence of proper career counseling and effective mentorship leaves junior personnel without the necessary guidance. This is the subsequent result of the previously mentioned challenge of high turnover.

6.3 Policy Support

The majority of the key respondents mentioned the lack of policies that assist the development of the industry. When specifically inquired about existing policies contributing to the growth of the industry, 85 percent of respondents answered negatively. Among all the respondents, one stated that the government has started bringing in policies, however, they lack implementation.

Following are the policy areas the representative showed the need for the government's attention:

6.3.1 Clarity on Definitions

There is a lack of precise definitions of the ICT industry and its various sectors. The lack of a proper framework that clarifies what falls under the umbrella of ICT and what does not is necessary for ICT companies to follow the laws and regulations set by the government. And, for the government to help companies achieve their optimal potential. Furthermore, some keyword definitions should be reevaluated to align with the industry mechanism. Redefining the understanding of direct employment and other forms of employment is necessary for ICT, which is distinct from traditional industries like manufacturing.

6.3.2 Elevating Industry Priority and Integration within Economic Zone

The respondents lacked awareness of the industry's integration within the Special Economic Zone (SEZ). Consequently, they recommended the inclusion of the industry in the economic zone allowing the government to allocate resources, provide incentives, and implement supportive measures to foster its growth. Respondents highlighted the need to not only list the industry into

economic zones but also provide incentives to encourage them to shift their workplaces. Along with integration within the zone, the industry priority should also be enhanced. With the increased attention, the industry could foster more innovation and investment.

6.3.3 Branding

As Nepali companies are catering to international marketing, it becomes crucial to enhance the country's branding. Most key informants working in the outsourcing sector stated that the government needs to work on the branding of the country not just to attract more international clients but also to present itself as a competitive player on the global stage. International clients are concerned about the reputation and image of the destination country while making their business decisions. To compete with countries like the Philippines and Sri Lanka who are our biggest competitors, Nepal needs to brand itself as an IT hub. Additionally, the government could use diplomatic international visits to provide space for IT industries, further enhancing Nepal's brand as an IT hub.

6.3.4 Cybersecurity

Along with other policies supporting to expansion of ICT business, strong cyber security laws are the most crucial. As interconnection between digital networks increases, the potential risk to sensitive data grows as well. A proper cybersecurity framework is needed to safeguard companies against cyber thefts, data breaches, and hacking. One of the respondents mentioned that international companies do not feel secure doing business in Nepal due to the lack of strong cybersecurity laws.

6.3.5 Contract Law

As mentioned above, high turnover is one of the challenges faced by firms in the industry. Implementation of effective contract law could mitigate the high turnover rates existing in the industry. A strong framework for contract law would ensure a stable labor market, reduce turnover costs, and create a more supportive environment for the growth of the firms.

6.3.6 Licensing

Licensing protocol should be implemented into various sub-sectors to help maintain fair pricing and ensure quality across a range of products and services produced by local companies and external sources. One participant mentioned that the government policies regarding software usage are not fair, and it creates an unfavorable market for local software developers. They pointed out the negative impacts on local developers due to the lower cost of Indian software. Due to the easy availability of cheaper Indian software, the banking sector which is considered to have a large procurement volume also uses imported software packages. This practice can be seen even among the government initiatives integrating IT into different sectors.

Using an example of a liquor store, which needs to register itself under OCR as well as acquire a License from the Department of Food Technology and Quality Control, an interviewee established a need to have a similar regulatory framework tailored to different sectors within the ICT industry.

6.3.7 Cloud regulations

A respondent emphasized the need for cloud regulations to facilitate their business growth. They pointed out that banks, as major buyers, could adopt cloud technology in their operations if proper cloud regulations were established. These regulations could provide a secure environment for business expansion for many companies within the industry.

6.3.8 Curriculum Reform

One of the significant challenges this industry faces is the skill gap which is due to the outdated curriculum in educational institutions. Every respondent unanimously agreed to the need to reform the country's existing educational policies. A holistic approach to education should be adopted where students do not just rote book knowledge but are also taught essential skills like critical thinking, reasoning, and analytical skills. An interesting point was mentioned by one respondent, who mentioned that while teaching coding skills is not necessary among high schoolers, fostering problem-solving skills should start from the early grades. The curriculum needs to be designed to cater to different students' interests. Moreover, the higher education curriculum should be structured to allow students to engage in part-time jobs starting from their second year so that they get to gain experience along with their degree.

5.3.9 Government Facilitation

Every respondent expressed the absence of proper framework and regulations within the industry. Among them, 85% voiced that they do not want the government to come in as a regulator with strict rules but as a facilitator. The government could facilitate the creation of an ecosystem where businesses can collaborate, innovate, and grow. The government also needs to facilitate collaboration between local companies and the international market. Along with this the government could build relationships with other countries to expand the market for this industry.

7. Discussion

7.1 Disharmonies in Policies

As discussed in the section above, inconsistencies have emerged between the Industrial Enterprise Act and the Income Tax Act. The disparities are evident in the tax concession provisions related to employment provided in both acts. Specifically, the discrepancy lies in the variance of tax rates mentioned by these acts. The practical implementation of tax rates falls under the jurisdiction of the Inland Revenue Department which is under the Ministry of Finance, leading to the implementation of the lower tax deduction for companies. Understanding the significant effect of these tax provisions on companies, it is important to implement the already provided higher tax

deductions. This is particularly vital, considering how tax policies directly affect how companies operate their business (Streeter, 2022).

In addition to the tax rate discrepancy, there is an inconsistency in defining "direct employment" within provisions. While the Labor Act 2017 (2074) outlines various types of employment such as regular, work-based, casual, and part-time employment, it does not define direct employment. A clear definition of this is essential. The definition should accurately fit the distinctive nature of work in the ICT industry, which differs from traditional industries. The absence of a well-defined definition creates confusion for both companies and government authorities responsible for granting tax benefits.

Lastly, the inconsistency identified was the exemption of two segments within the ICT industry outlined in the provisions. While tax concessions are extended to the IT industries, it is not applied to IT-based and Dissemination technology-based industries. The above-mentioned provision is one of the few provisions that aid the industry. A modification to include the remaining two segments would assist in enhancing the industry. Given that the Internet is one of the key infrastructures of the ICT industry's growth, Internet Service Providers play a vital role as the backbone of this industry. Without ISPs, other segments would cease to function effectively. Despite being an integral part of the industry, ISPs, classified under IT-based industries are unable to access tax benefits due to the provision's limitations.

The observed discrepancies suggest a lack of synergy between various ministries and misalignment in their goals. Another reason is the ICT industry is not considered a priority industry leading to neglect of this disharmony. This disharmony impacts employment opportunities, as companies providing jobs to Nepali citizens are not incentivized adequately. The higher tax incentives could lead companies to increase jobs (Amankwaah et al., 2022). Precisely defined terms would facilitate a broader range of companies in accessing tax benefits. While rectifying the discrepancies, it is important to consider the objectives of both acts, aiming to bring clarity to policies and reduce confusion within the industry.

7.2 Challenges

7.2.1 Skills Gap

There is a misalignment between the skills possessed by the supply side and the skills demanded by companies. As a major player in the Triple Helix framework, where collaboration between academia, industry, and government drives innovation (Etzkowitz and Leydesdorff), educational institutions play a crucial role in addressing the skills gap among students in various industries, including the ICT industry. The identified skills gap within the labor force could stem from the outdated curriculum that universities offer to students. Given the rapid growth of the industry, the required knowledge is also expanding rapidly. Therefore, with industry growth, the curriculum should be regularly updated to equip students for real-world work challenges. Along with curriculum reform, educational institutions could provide practical experiences by providing training and workshops to students, bridging the gap between theoretical knowledge and practical

skills. The partnership between industry and academia could also foster growth and innovation and narrow the skills gap.

Similarly, the industry also has a crucial role to play in fostering innovation, it becomes a significant contributor to reducing the skill gaps. A study conducted by Udemy (2020) surveyed employees from India, Spain, France, Brazil, and Mexico and showed that employers must support their employees in upgrading their skills to align with the evolving market demands.

7.2.2 Higher Turnover

The high turnover rate in the ICT sector can be linked to several reasons, as mentioned in the findings and analysis section. Lemma (2017) in his study on Nepal's ICT sector, also noted similar outcomes, where companies efficiently filled the job vacancies but struggled to retain employees, affecting their growth. The significant skills gap mentioned earlier also contributes to this issue (Korsakiene et al, 2015). Moreover, both internal and external factors play a role in employees' decision to leave. These factors could range from a negative work environment to better opportunities in other companies. In the context of IT companies in Kathmandu, Khadka and Singh (2020) found that effective talent management practices and opportunities for career growth encouraged longer employee commitment to the firms. The higher employee turnover directly impacts the firms' productivity, sustainability, competitiveness, and profitability (Al-Suraihi, 2021). This significant challenge could cause hindrance in the growth of the ICT industry if responsible stakeholders along with the government do not collaborate to address it.

7.2.3 Limited Senior Workforce

The higher turnover mentioned above leads to a shortage of experienced senior laborers in the job market. Senior roles require more expertise and experience, making it challenging and expensive for companies to hire externally rather than promoted from within. The lack of proper career guidance for lower and middle-level positions causes skilled workers to leave early, creating a struggle to find leaders later on. Additionally, the scarcity of skilled labor globally gives these workers the choice of higher-paying jobs, whether from local or foreign companies. For firms to grow and innovate, they need highly skilled and motivated employees, in which senior leaders play an important role. This scarcity of leadership positions directly affects company growth and, on a larger scale, industry growth. The absence of senior leaders not only affects the firm's growth but also hinders team formation which could create employment opportunities for a significant number of middle and entry-level employees.

7.3 Policy Support

In the previous section, we identified various areas that require policy support. Some key areas include defining terms, prioritizing industry, branding the nation, establishing strong cybersecurity, contract laws, reforming curriculum, and government facilitation. The following section will present further discussion of the key policy areas.

7.3.1 Elevating Industry Priority and Integration within Economic Zone

The government of Nepal plans to establish a Special Economic Zone (SEZ) in each province to boost exports, attract both foreign and domestic investments, and improve living standards. Industries in these zones receive benefits like infrastructure services and tax exemption. Theoretically, ICT industries are allowed in SEZs as IT Parks, but none have been set up yet. While efforts like Banepa IT Park show potential, they failed due to insufficient research and a lack of collaboration between the public and private sectors.

According to the Industrial Enterprise Act 2020, the IT industry is classified as a priority industry. Furthermore, the Nepal Trade Integration Strategy 2023 has also recognized the export potential of some services of this industry, specifically IT BPO and IT engineering. To tap into the fullest potential of this industry, the government should focus on understanding industry needs, providing necessary facilities, and formulating appropriate policies.

7.3.2 Branding

The Ministry of Tourism has effectively promoted Nepal as a popular travel destination through campaigns like "Visit Nepal". Similarly, to attract foreign clients and establish itself as an IT hub, Nepal needs to create a recognizable presence in the international market.

Compared to other South Asian countries, India leads IT on a global scale. Additionally, several other Asian countries have emerged as IT hubs. For instance, despite its smaller geographical size, Sri Lanka has successfully branded itself as the "Island of Ingenuity". A digital economy that is growing quickly, where growth is supported by strong infrastructure and a quality workforce. The country's IT exports have flourished, ranking second in its overall exports. As mentioned by Dissanayake (2011), Sri Lanka has an advantage because of low labor and operation costs, along with tax incentives offered by the government to attract foreign businesses.

Nepal’s IT sector could experience similar benefits by building a strong brand and implementing safer policies and regulations to attract foreign businesses.

7.3.3 Cybersecurity and Cloud Regulations

All the respondents have unanimously highlighted the need for robust cybersecurity laws in Nepal to foster the development of the ICT sector. The government has been able to recently pass the country's first National Cyber Security Policy 2023. The Minister of Communication and Information Technology has stated that the policy encompasses strategies, guidelines, objectives, and plans for strengthening cyber security.

Furthermore, the government needs to conduct a research study to determine whether the policy adequately addresses cyber security provisions that support the growth of the ICT industry, particularly the IT export sector. This is crucial to make sure that the cybersecurity laws can give a sense of assurance and safety to international clients which could create many opportunities for Nepali companies.

7.3.4 Contract Law

Enforcing Contracts could address the challenge of high turnover, which significantly impacts the growth of companies. However, it is essential for the government to undertake prior research aiming to gain an understanding of the perspective and requirements of both employees and employers. It is crucial to evaluate both the short-term and long-term benefits and costs associated with the implementation of strict contract laws. The evaluation will aid in making informed policy decisions that would affect the ICT industry's growth and sustainability.

7.3.5 Licensing

Licensing regulations are important to ensure quality and standardization in the software development sector, benefiting consumers. They also support privatization, commercialization, competition among local companies, consumer protection, and market regulation (International Telecommunication Union, nd.).

However, licensing has pros and cons. Thierer (2023) highlighted that licenses might increase costs, discourage competition and innovation, and create barriers to entry. To address this, the government should create flexible policies that create a safe environment for local companies while promoting the growth of the ICT industry.

7.3.6 Government Facilitation

Government facilitation is important for building relationships between the public and companies. It should act as a mediator, with a key role in establishing international business relations and fostering domestic industries. Through effective policymaking, the government should facilitate regulations that align with the needs of local businesses and the people, creating a thriving economy. Additionally, the government should provide a platform for private companies to voice their concerns. Government facilitation is important for building relationships between the public and companies. It should act as a mediator, with a key role in establishing international business relations and fostering domestic industries. Through effective policymaking, the government should facilitate regulations that align with the needs of local businesses and the people, creating a thriving economy. Additionally, the government should provide a platform for private companies to voice their concerns.

8. Policy Recommendations

As previously stated, one of the research objectives is to formulate policy recommendations for government organizations. The following policy recommendations have been highlighted after interviews with industry stakeholders.

Recommendations	Implementation Area	Responsible Entities

Offer tax incentives in line with other industries that have similar level of employment	Propose necessary amendments to provide more incentives for employment generation within the ICT industry and the industry's growth.	MoF, Industry Representatives, Tax Experts
Broaden the definition of ICT definition	Conduct research to redefine and broaden the scope of ICT considering the rapidly changing industry	MoCIT, Research Institutions, Industry associations
Standardized definition of direct employment	Collaboration across government bodies to create a clear and consistent definition of terms related to employment such as direct employment	MoLES, Private Sector
Inclusion of IT-based industries in tax incentives provisions	Advocate for amendments for integration of IT-based industries in tax incentive provisions	MoF, MoICS, Industry associations
Encourage in-house training for employment growth	Introduce incentives to companies providing in-house training and assisting in workforce development	Ministry of Labor, Private sector, industry association
Facilitate collaboration between educational institutions and industry	Build partnerships between education and industry to make the workforce ready based on the industry's needs	Ministry of Education, Educational Institutions, Private sector
Implement marketing campaigns to promote the country as an IT hub	Create and implement marketing strategies to position the nation as an IT destination	

Initiate International Dialogues for business expansion agreements	Engage in diplomatic discussions with ministries and various countries to explore trade agreements for the ICT industry	Ministry of Foreign Affairs, Industry Representatives
Creating a legal framework for contract law and licensing mechanisms	Conduct research on the feasibility of contract law and licensing within the industry	Legal experts, Industry Representatives, Research Institutions
Reform curriculum in schools	Implement updated curriculum ensuring students learn ICT-related skills from an early age and align higher education curriculum to the industry demands	Ministry of Education, Educational Institutions, Private sector
Establish Engagement Platforms to foster communication between industry stakeholders	Create platforms where industry associations and representatives can voice their needs and concerns to the ministry	MoCIT, Industry Representatives, ICT Assosciaitons

9. Conclusion

This research has identified policy disharmonies between the Income Tax Act and the Industrial Enterprise Act concerning the ICT industry. The recognized discrepancies in tax incentives and the absence of precise definitions show the need for comprehensive reforms. In addition to these discrepancies, Nepal's ICT industry also faces challenges such as a skills gap, higher turnover, and a limited senior workforce. To address these challenges, this research also proposes policy recommendations aimed at bridging these gaps, advocating for collaborative efforts among government bodies, private sectors, and educational institutions.

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Annex A

Consent Form

The research titled “Harmonizing Policies for Employment Generation in the ICT Industry” is conducted as a part of Daayitwa Nepal Public Policy Fellowship 2023 by Ms. Tujala Jonchhe. It is conducted in collaboration with the Ministry of Communication and Information Technology and Worldlink.

- Participation is voluntary, and I can withdraw at any time without consequences.

- I can withdraw some answers within a week if I feel it is better not to include them.

- All the information I provide will be kept private and used only for this research.

- Prior permission will be taken to include my name, position, or company’s name in any report or publication.

- The interview will be recorded, and notes will be taken during the interview.

- If needed, a follow-up might be required.

I hereby agree with all the above-mentioned.

Yes No

If you have any questions or concerns about the research or your role in this study, please feel free to contact me by email at tujala.jonchhe@daayitwa.org. You may also contact the organization, Daayitwa, by phone at +977-1-5444914 or by email at contact@daayitwa.org.

By signing below, you consent to participate in the research conducted by Ms. Tujala Jonchhe.

I understand the nature of this research and wish to participate.

Name of the Participant:

Phone No. of the Participant:

Signature of the Participant:

Researcher Signature:

Signature Date:

Annex B Questionnaire

For Government

1. How do you see the IT sector/ industry in the current context of Nepal?

2. What do you think are the key factors/issues affecting the development of this industry? Can you please elaborate with specific examples?

3. What are the barriers that exist which are hindering the achievement of the ICT Policy 2015 objectives?

4. Can you highlight specific points/gaps between ICT policy and other policies of the government of Nepal that are the Industrial Enterprise Act?

5. Which of the points/provisions in ICT policy is supporting employment generation in Nepal?

6. What specific clauses/issues have to be highlighted/continued in the ICT policy to promote employment in the ICT industry?

For Industries

1. General overview of the ICT industry in Nepal from your point of view.

2. What do you think are the key factors/issues affecting the survival of this industry?

3. What do you think are the key factors/issues affecting the development of this industry?

4. How many people are currently employed in your firm?

5. How challenging has it been for your firm to hire skilled candidates for various IT positions?

6. What are the challenges you face in recruiting employees at your firm?

7. Are you aware of Government policies/programs that support your industry? Please elaborate with specific examples.

8. What do you think should be included in the policies to increase employment in this industry?

9. Are there any policy hurdles you are aware of affecting the development of this industry? If yes, please elaborate.

10. What policies could be included or improved to increase employment in the ICT industry?