

Unleashing IT: Advancing Nepal's Digital Economy

Expanding jobs and exports



Institute for Integrated
Development Studies (IIDS)

Unleashing IT: Advancing Nepal's Digital Economy

Expanding jobs and exports

Institute for Integrated
Development Studies (IIDS)

July 2023

Acknowledgements

This study has been conducted as a part of the initiatives undertaken by IIDS. The underline survey, data collection and stakeholder engagement was carried out with the generous support of Digital Development Partnership (DDP), administered by the World Bank Group (WB). DDP offers a platform for digital innovation and development financing, bringing public and private sector partners together to advance digital solutions and drive digital transformation in developing countries. Additionally, this activity has received funding from the Program for Asia Connectivity and Trade (PACT) which is a World Bank South Asia regional trust fund supported by the UK's Foreign, Commonwealth and Development Office (FCDO). This study is further bolstered by the Dolma Impact Fund, Fusemachines, Cloud Factory, and Nepal Association of Software and IT Service Companies (NAS-IT).

The Institute for Integrated Development Studies (IIDS) would like to express appreciation to Mr. Dirgh Raj Mainali, Inland Revenue Department (IRD), Mr. Guru Poudel, Nepal Rastra Bank (NRB) and Mr. Siddhartha Raja, WB, Mr. Bal Krishna Joshi, Mr. Manohar Bhattarai and Mr. Ankur Sharma for their cooperation in this study.

IIDS would like to also express its thanks to the crucial role of its staff members, namely, Dr. Amrita Sharma (Consultant), Mr. Dharmendra Lekhak (Head Statistician), Mr. Samar SJB Rana (Senior Research Assistant), Ms. Moktshya Poudel (Research Intern), Tanushri Gauchan (Research Intern), Ms. Bipashwi Shrestha (Research Intern) and Ms. Pragyee Bhatta (Research Intern).

IIDS would also like to thank Mr. Dhiraj Ghimire for cleaning the data collected from the survey. Furthermore, IIDS extends appreciation to all the enumerators for conducting the tedious work of collecting the primary information and data for the survey conducted for 86 IT companies and 389 freelancers. The enumerators are as follows: Ms. Nikky Khadgi, Mr. Sujan Shrestha, Ms. Sanjana Shrestha Lacoul, Mr. Prakash Karki, Ms. Kristina Thapa, Mr. Rabin Oli, Mr. Sandip Dahal, Ms. Monika Sharma, Ms. Sachi Devkota, Mr. Nikesh Kumar Gupta, Mr. Mukunda Kafle, Ms. Suman Mainali, Mr. Sulav Chalise, Mr. Bishek Khadgi, and Ms. Sushma Gauchan.

Dr. Biswash Gauchan, FCA

Executive Director

IIDS

DISCLAIMER

The perspectives presented in this report exclusively represent the views of the IIDS (Institute for Integrated Development Studies) based on empirical research. They may not necessarily align with the viewpoints of the study's partners.

Layout Design: Saurav Thapa Shrestha, Everything Creatives Pvt. Ltd.

Table of Contents

ACKNOWLEDGMENTS	I
TABLE OF CONTENTS	III
LISTS OF TABLE & FIGURES	V
ABBREVIATIONS	VI
EXECUTIVE SUMMARY	VII
SECTION I: INTRODUCTION	1
Objective	4
Methodology	5
Delimitation	6
Research Scenario	6
SECTION 2: IT EXPORT SERVICE CONTRIBUTION	9
Total contribution of IT service export	10
Contribution of IT exports to GDP and foreign currency reserve	12
Number of Freelancers Exporting IT service from Nepal	13
Average Earnings of IT Companies and Freelancers	14
Global Scenario and Future Potential	15
SECTION 3: EMPLOYMENT SCENARIO OF IT SERVICE EXPORTS	16
Educational Background	17
Recruitment	18
Income	19
Skills	22
Motivation	23
SECTION 4: GAPS AND CHALLENGES	25
Infrastructures	26
Electricity	26
Internet	26
Data Services	26
Physical Infrastructure	27
Policy and Regulations	27
Awareness on Policies	28
Tax	28
Annual Renewal Process	28
Government Support and Political Commitment	28

Perceptions on Business Climate	29
Human Resources	29
Payment System	29
Companies Perspectives	30
Freelancers' perspectives	30
Institutional Arrangement	31
Social Factors	32
Cultural Impact	32
Mindset	33
Work culture	33
SECTION 5: PATHWAY TO GROWTH	34
Infrastructure Development	35
Investment and Financial Support	35
Human Capital Development	37
Policies and Regulations	39
Branding/Promotion of Nepal's IT Industry	41
Coordination and Collaboration	42
Innovation	44
SECTION 6: CONCLUSIONS	48
REFERENCES	49

List of Tables & Figures

Table 1: IT Service Exported by IT Companies and Freelancers in Nepal by Year in USD million	10
Table 2: IT Service Export Companies' Revenue and Investment in Nepal	10
Table 3: Contribution to GDP and Foreign Currency Reserve	11
Table 4: Number of Freelancers Exporting IT Services in Nepal by Occupation and Year	13
Table 5: Annual Income of IT worker in Nepal in USD in 2022	13
Table 6: Worldwide IT spending Forecast (Millions in U.S. Dollars)	14
Table 7: IT Export of South Asian and Eastern European Countries in FY 2021-2022 Volume	15
Table 8: Types of Educational Level of IT Service Export Employees	17
Table 9: Types of Education Background of IT Service Export Services	18
Table 10: Level of Employees as Perceived by IT Export Service Industry	21
Table 11: Training Duration for Employees in IT Service Export Industry	21
Table 12: Reinvestment of Revenue Outside the Country	30
Figure 1: Growth of IT Export Companies in Nepal	7
Figure 2: Areas of Work in Information and Technology Perceived by Freelancers as Their Expertise	20
Figure 3: Software Competencies Anticipated from Nepali Workforce	22
Figure 4: Soft Skills (Transverse Skills) Expected from the Nepali Workforce	23
Figure 5: Prominent Challenges in IT Service Export Industry as Perceived by Freelancers	24

Abbreviations

BPO	Business Process Outsourcing
DNF	Digital Nepal Framework
FOREX	Foreign Currency Reserve
GDP	Gross Domestic Product
GoN	Government of Nepal
ICT	Information Communication Technology
IIDS	Institute for Integrated Development Studies
IRD	Internal Revenue Department
IT	Information Technology
ITES	Information Technology Enabled Services
MOCIT	Ministry of Communication and Information Technology
NAS-IT	Nepal Association for Software and IT Service
NRB	Nepal Rastra Bank
NRN	Non-Resident Nepalese
NSO	National Statistics
OLI	Online Labor Index
STEM	Science Technology Engineering and Mathematics
SWIFT	Society for Worldwide Interbank Financial Telecommunication
WB	World Bank

Executive Summary

This report explores the current state of Nepal's IT sector focusing on the growth and challenges associated with IT service exports. The advancement and democratization of technology in the 21st century has interconnected economies and markets, providing people in Nepal with access to global consumers, employment opportunities, and valuable resources. The report emphasizes the significant contributions of IT service exports to Nepal's GDP, foreign exchange reserves, and overall economic development.

The key findings indicate that the IT service export (ITes) industry in Nepal is valued at approximately USD 515 million, with over 106 IT service export companies and 14,728 IT freelancers in software development and technology and 51,781 ITeS freelancers engaged in exporting IT services through various digital platforms. The total IT service export reached USD 515 million in 2022, representing a growth of 64.2% since 2021. Both IT companies and freelancers experienced substantial growth, with IT companies recording an 80.5% increase in service exports compared to the previous year, and freelancers achieving a growth of 55.2%.

The revenue growth in the IT sector demonstrates the success of Nepali companies in offering high-quality IT services to international clients, resulting in an increased influx of foreign exchange. These achievements highlight the competitiveness and competence of Nepal's IT services, contributing to Nepal's economic development. In 2022, IT service exports accounted for 1.4% of the country's GDP and 5.5% of the foreign exchange reserves.

The report further addresses the challenges faced by the IT sector in Nepal. Limited skills and competence of the IT workforce highlights areas of improvement. By improving the skills and competencies of the IT workforce, enhancing professionalism, and increasing access to high-speed broadband services and reliable internet connectivity, Nepal can overcome obstacles to outsourcing and improve productivity of freelancers. Additionally, by improving physical infrastructure, aligning policies with industry needs, increasing funding for IT startups, and promoting sector branding and quality education, Nepal can unlock the potential for growth in the IT sector.

To foster the growth of the IT sector and maximize its economic contributions, the report provides recommendations for the stakeholders in seven major areas: i) infrastructure development; ii) investment and financial support; iii) human capital development; iv) policies and regulations; v) branding and promotion of Nepal's IT industry; vi) coordination and collaboration, and; vii) innovation. In addition to emphasis on upskilling, reskilling, and continuous access to affordable, high-speed internet, the report draws attention to the need for high

capacity, energy efficient, and secure data centers, along with effective policies to support the IT industry's growth.

The report highlights the significance of Nepal's youth involvement in the IT sector, with 83.5% of freelancers falling within the age bracket of 20 to 29 years. Encouraging youth-centric policies in Nepal can thus harness talent and foster homegrown growth. A transition from labor export to service export can address the issue of brain drain and leverage Nepal's demographic dividend, leading to socioeconomic and political rewards.

To conclude, Nepal's IT sector has shown promising growth in IT service exports, and foreign exchange reserves, contributing to the national economy. However, addressing challenges related to skills, infrastructure, policies, and collaboration among stakeholders is important for sustained growth. With strategic interventions for tech industry and youth-centric policies, Nepal can further unlock the potential of its IT sector and position itself as a competitive player in the global digital economy.



To foster the growth of the IT sector and maximize its economic contributions, the report provides recommendations for the government in seven major areas:

- i. infrastructure development,
- ii. investment and financial support,
- iii. human capital development,
- iv. policies and regulations,
- v. branding and promotion of Nepal's IT industry,
- vi. coordination and collaboration, and
- vii. innovation.

SECTION ONE

Introduction

Introduction

The advancement and democratization of technology in the 21st century has led to the interconnectedness of economies and market systems, giving people from various parts of the world the ability to access potential consumers, availability of employment opportunities and other resources that are geographically distant from where they reside. Digital globalization has eased technology access, spiking the global demand for digital goods. This is highlighted by borderless labor markets and weightless products. For Nepal, landlocked yet IT service-enabled, exporting services thrives without physical border hindrances. This advantage helps services seamlessly reach vast international markets, embodying the borderless, weightless product concept. At the heart of this transition has been the information, communication, and technology (ICT) industry, which has been both an enabler and a beneficiary of this interdependence between economies. As a result of its growing influence in business and trade, many developed and developing countries have become increasingly reliant on the ICT industry for revenue and employment (The World Bank, 2013). An estimate of the World Bank (2022) suggests that the digital economy comprises 15% of the global gross domestic product (GDP) and is growing two and half times faster than the physical world GDP in the past decade. Within the realm of digital economy, revenue generation from only the Information and Technology (IT) services (includes Business Process Outsourcing, IT consulting and outsourcing) is predicted to show an annual growth (CAGR 2023-2027) of 6.86%, resulting in a market volume of USD 1,570 billion by 2027.

Even during challenging times such as the Covid-19 pandemic and multiple geopolitical crises, the IT market has played a crucial role in sustaining economies, preserving jobs, and facilitating communication between governments, firms, and citizens. Technological innovations and the rise of digital labor platforms



In Nepal, the IT sector presents an opportunity for contributing to a steady economic growth in the digital era. Unlike such sectors as tourism, hydropower, and agriculture, which face challenges due to geographical limitations and competition from neighboring manufacturing hubs, IT service exports can thrive without a similar set of impediments.

have made it easier for individuals to increase their earnings through profitable side-gigs. The use of digital platforms, cloud computing, big data, open-source innovation, and algorithms has provided flexibility for workers, businesses, and service users.

Nepal, like many other countries, is experiencing a wave of this global trend. Software development and digital services through offshore outsourcing are on the rise. But Nepal's efforts to promote the export-oriented IT industry and tech startups have been relatively limited compared to its neighboring countries, India and China. The immediate neighbors of Nepal have established themselves as major destinations for offshore outsourcing while Ukraine, Moldova, Romania, Vietnam, and Bangladesh are also expanding their capabilities in this field. South Asia, with its large and young English-speaking population and a growing emphasis on STEM fields, has shown remarkable progress in terms of ICT penetration. For instance, India's ICT sector accounts for 7.4% of its GDP, with exports from the IT industry reaching USD 194 billion in the fiscal year 2021 (NASSCOM, 2022).

In Nepal, the IT sector presents an opportunity for contributing to a steady economic growth in the digital era. Unlike such sectors as tourism,

hydropower, and agriculture, which could face challenges due to geographical limitations and competition from neighboring manufacturing hubs, IT service exports can thrive with less challenges.

Historically, Nepal has given limited attention to the IT industry, particularly in areas such as IT outsourcing and e-commerce. The lack of funding for early-stage financing and company incubation has hindered the growth of IT startups and the overall economy (Agal et al., 2021). In this digital era, IT offers a new frontier for development for a landlocked country like Nepal, which is burdened by thick borders, weak connectivity (road, rail, energy), and poor cross-border infrastructures. IT service exports, on the other hand, do not need to deal with such hassles as inadequate cross-border infrastructure and delayed clearance time, common challenges encountered at border crossings. The notion of borderless and weightless service exports has given rise to the export of IT services. Still, the Government of Nepal gives far greater importance to tourism, hydropower and agriculture, which are seen as legacy sectors (Ministry of Finance, 2021). This means that the GoN has attached far less importance to explore the potential of the IT market.

While the government has introduced initiatives such as the Digital Nepal Framework and the Master Plan for ICT in Education (2013-17), policies and legal frameworks concerning IT remain poor in comparison to most South Asian countries, especially in segments such as IT outsourcing and e-commerce. On a positive note, the Nepal Association of Software and IT Service Companies (NAS-IT), the first software association in Nepal, was established in early 2023. An association for IT companies can be a 'melting pot' for people from various IT professions to work together, promote the sector as a new labor market, and help IT start-ups by providing mentorship.

The Fourth Industrial Revolution, 4IR, or Industry 4.0 has been able to revolutionize working patterns and employment opportunities. The IT sector offers various employment opportunities including from IT security specialists, software developers, web developers and digital marketers,

among others. To buttress the advancement of the ICT sector in Nepal, the GoN published the Digital Nepal Framework (DNF) in 2019 (Sharma, 2020). This serves as a roadmap for digital economic future in eight different categories, which are further divided in 80 different digital initiatives. However, the DNF has yet to be fully implemented. In 2022, the GoN decided to invest NPR 22 billion to implement the DNF (Aryal, 2022), and donor organizations like the World Bank have shown proclivity in assisting Nepal's digital future. Currently, the challenges in boosting Nepal's ICT future seem to outweigh the recent gains. A combination of factors including limited digital literacy and digital divide among citizens, weak government regulatory frameworks, inadequate IT skills, and inaccurate data are impediments to Nepal's digital economic journey. The gig economy sector can also be more formalized through an appropriate enabling environment.

Realizing the opportunity as well as the challenge in digital trade and export of IT services, the Institute for Integrated Development Studies (IIDS) conducted this baseline study to understand the contribution of IT service export to the country's foreign reserve and its potential. IIDS, alongside the World Bank, the Dolma Impact Fund, the Fusemachines, and the Cloud Factory jointly executed the implementation of the research project. This exploratory study intends to contribute to the opportunity that technology and tech-enabled policies can foster in unlocking foreign currency earnings. This study aims to not only identify factors that have stymied the progress of the country's IT sector but also provide policy solutions on IT services exports and identify prospective employment opportunities in the IT market.

To buttress the advancement of the ICT sector in Nepal, the GoN published the Digital Nepal Framework (DNF) in 2019 which serves as a roadmap for digital economic future in 8 different categories, which are further divided in 80 different digital initiatives.

Objective

The main objective of this study is to help understand the contribution of the IT industry (digital services and IT export) to the country's export (including to foreign exchange earnings), employment opportunities and its future potential in the context of Nepal. Following are the specific objectives:

- » **To understand the current contribution of IT services exports and employment to Nepal's economy**
- » **To explore the existing gaps, challenges and opportunities of IT service exports.**
- » **To identify policies and measures that can realize opportunities as well as address bottlenecks in Nepal's IT industry growth.**

This study examined the IT service export sector in Nepal, with a specific focus on IT companies that export services and freelancers who work remotely from Nepal and provide IT services to clients abroad. By narrowing the scope to this specific segment, the study aims to gain a deeper understanding of the dynamics, challenges, and opportunities within this particular area of the IT industry. The decision to concentrate on IT service export was driven by the growing importance of this sector in Nepal's economy and its potential for growth and development. By analyzing the experiences and perspectives of IT companies and freelancers engaged in exporting services, the study seeks to shed light on key aspects

such as government support, regulatory issues, payment systems, cultural factors, and the overall competitiveness of Nepal's IT service export industry.

The findings and recommendations of this study are designed to be valuable for policymakers, industry stakeholders, and researchers interested in understanding and supporting the growth of the IT service export sector in Nepal. Additionally, the study can serve as a foundation for further research and analysis in this specific domain, facilitating the development of targeted strategies and initiatives to enhance the competitiveness and sustainability of Nepal's IT service export industry.

Methodology

This exploratory study aims to examine the current scenario of IT service exports to foreign reserves. It serves as baseline study. This mixed methods research (MMR) process started with an extensive review of literature on IT service exports from Nepal and was followed by consultations with relevant stakeholders. Surveys were then conducted with IT companies and freelancers involved in the export of IT services. The survey results were then explained with an informed in-depth understanding of some cases and related concerns.

- In the initial phase, a desk review was conducted that involved the collection, evaluation, and analysis of global, regional, and national reports, articles, journals, and other secondary data on IT service exports. This literature review provided an initial assessment of Nepal's current status in terms of IT service exports, the challenges faced by freelancers and IT companies, and the policy landscape in Nepal.
- With the intensive literature review, a survey plan was developed. Then a questionnaire was developed with a series of consultations with stakeholders and reliability tests.
- Next, a survey plan was executed using trained enumerators who conducted interviews with freelancers and executives/founders of IT export service companies.
- Considering the unknown number of freelancers, 389 freelancers were included in the study; 86 IT companies were selected from the total of 106 companies which are under tax bracket of IRD. In addition to that, during the consultations with IT export industry leaders, it was found that there are more than 106 companies operating in Nepal. The importance was highlighted that the possibility of larger numbers of the company than 106. However, there are reasons behind the fewer reported numbers. Some companies have not yet

come under the tax bracket due to various factors such as operating primarily outside the country or employing staff as freelancers who receive direct payments to their accounts. Additionally, certain operational expenses are directly paid to vendors, which is not reflected in the reported figures.

- Following the survey, the study team conducted a preliminary analysis, incorporating findings from the desk review, surveys, and other secondary information.
- In order to explore extreme cases identified through the quantitative survey, a selection of cases were studied in depth. The data collected were analyzed and the results from both the quantitative survey and in-depth analysis of cases were integrated into the final report.
- For secondary data estimation, information was gathered from various sources including Nepal Rastra Bank (NRB), the Internal Revenue Department (IRD), the National Statistics Office (NSO), the Company Registrar Office, and the database of the Online Labor Index (OLI). In the financial year 2021-22, the implementation of a 1% tax on foreign exchange earnings resulted in IT export services being recorded separately from remittances, as there are over 106 registered companies and 9,400 freelancers listed in the Internal Revenue Department data. Therefore, the estimation relied on data from the IRD, which was triangulated with GDP data published by NSO, foreign reserve data, and the data published by NRB.



Study Numbers

389 Freelancers
86 IT Companies

Delimitation

It is important to acknowledge that this study's focus on IT service export and its exclusion of other segments of the IT industry, such as domestic software development or hardware manufacturing, may limit the generalization of its findings to the broader IT sector in Nepal. However, by narrowing the scope, the study is able to provide in-depth insights and recommendations specifically tailored to the challenges and opportunities faced by IT companies exporting services and freelancers working remotely. The report does not cover the critical role of IT infrastructure in such sectors as education, health or tourism, but highlights the potential applications, should growth occur. IT is no longer just a support function in these sectors but a fundamental component that enables innovation, efficiency, and improved services in these domains. For instance, in the education sector, IT infrastructure facilitates online learning platforms, virtual classrooms, and digital resources, enabling broader access to quality education. This study focuses on IT companies' export services; however, underscores the importance of future research covering the overall contribution of the IT sector in Nepal, be those social or economic.

Research Scenario

About IT Export Services Companies

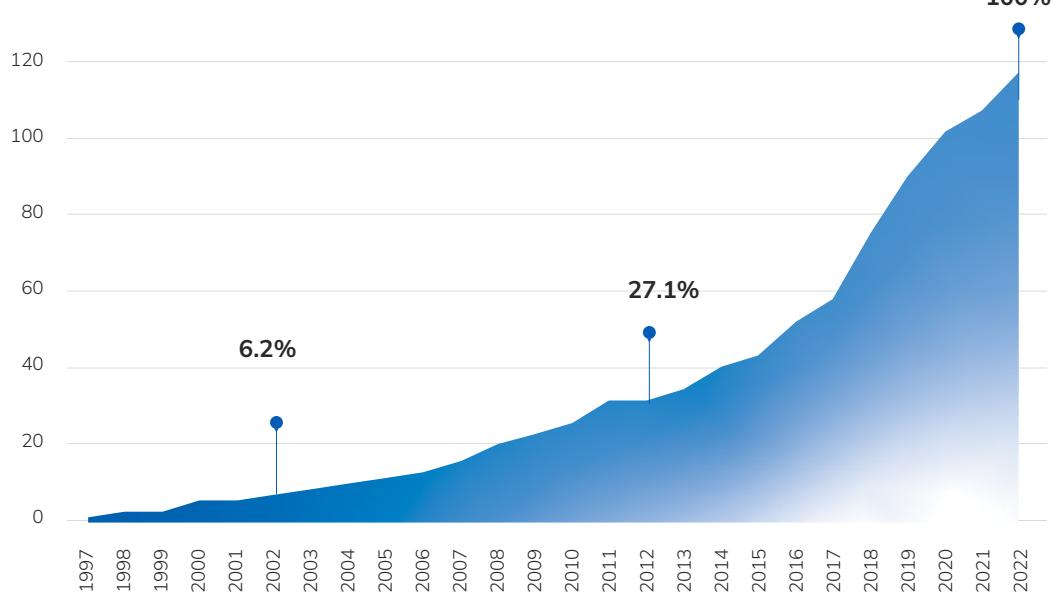
The respondents from IT companies were predominantly in senior positions such as CEOs, founders, and managing directors. Among the IT company respondents, a significant majority (67.9%) possessed a master's degree or higher qualification in the IT sector. While the majority of respondents were Nepali, comprising 96.3% of the participants, a small proportion (3.7%) identified themselves as Non-Resident Nepalese (NRN).

Description of the IT Export Services from Nepal

Among the companies operating in Nepal, 75.3% are solely registered within the country, while 24.7% are registered both in Nepal and abroad. The primary areas of export services provided by these companies include programming, coding, design, software development, and testing. A significant majority (78%) of the companies receive project-based work, although they express a desire for long-term assignments despite currently taking on monthly or hourly task-based work. A total of 58.3% of the companies frequently receive export services work, with 28.4% experiencing no operational issues, and 12.3% of the companies only receiving occasional assignments.

FIGURE 1

Growth of IT Export Companies in Nepal



In terms of clients, 77.8% of the IT companies surveyed receive assignments from the United States, followed by Europe, the United Kingdom, and Australia. Recently, there has been a shift in the trend, with more companies working with countries in Asia and the Middle East, such as the United Arab Emirates, Bahrain, Bangladesh, Bhutan, Indonesia, Japan, Republic of Korea, Malaysia, Singapore, Thailand, among others. Around 45% of the companies have been co-founded as private limited companies, while others operate in partnerships with international companies or as sole proprietorships. Among the partnerships, 87.5% exclusively involve Nepali partners, 3.1% foreign partners, 6.3% both Nepali and foreign partners, and 3.1% involve both Nepali and Non-Resident Nepalese (NRN) partners.

About Freelancers of IT Service Export Industry

Out of the 389 freelancers of this survey, 48.8% were in the 25-29 age group, and 34.7% in the 20-24 age group. This points to a significant potential for youth to contribute to the advancement of IT service exports. In terms of ethnicity, 58.2% of the freelancers identified themselves as Brahmins and Chhetris, followed by 31.0% from Janajati communities. The study also revealed that 79.1% of the freelancers were unmarried.

According to the survey, 79.5% of the respondents have completed a Bachelor's degree, and 12.5% a Master's degree. Approximately 6.4% have an intermediate level of education, and 0.7% have a technical and vocational educational background. Furthermore, 64.7% of the freelancers have pursued IT-related courses, while 35.3% of them do not have an IT background but have received some training in the IT sector. The majority (93.7%) have pursued their education in Nepal. Moreover, 64.7% of the freelancers have taken additional IT-related training, while 35.3% rely on self-learning and the education they received from their educational institutions to perform their jobs effectively.

SECTION TWO

IT Export Service Contribution

Nepal is a landlocked country surrounded by two massive manufacturing countries – China and India. Since the fiscal year 2018-19, Nepal's trade in services has been experiencing a widening negative trend, except for the fiscal year 2019-20." In this context, service exports are the future, presenting an intervention to balance Nepal's current trade deficit. The IT industry in Nepal has experienced significant growth and development in recent years, driven by advancements in technology and the rising global demand for IT services. Nepal has a considerable number of IT companies catering to both domestic and international markets. There are 7,637 companies registered in Nepal with the Company Registrar Office under the categories of computer hardware, computer software, data processing, computing, communication, technology, outsourcing, all database-related, data services of finance, statistical, computer-related, online business, e-commerce, service and repair and others (Sharma, 2023). Out of this, 6,900 are registered under the tax system.

According to the report published by the University Grants Commission (UGC) in 2021, there are eleven universities in the country, and with a total enrolment of 466,828 students. These universities collectively have 1,437 campuses across the country, further categorized as follows: i) Constituent Campuses: Out of the total campuses, 152 campuses (10.58 %) are constituent campuses; ii) Private Campuses: There are 749 private campuses (52.12 %) affiliated with these universities; iii) Community Campuses: A total of 536 community campuses (37.3 %) are associated with these universities. Regarding the educational programs offered, the report highlights the following: Undergraduate Level Programs: There are more than 1,250 campuses that offer undergraduate level programs. Postgraduate Level Programs: More than 300 campuses provide postgraduate level programs, out of which, 110 institutions offer courses related to ICT education. Additionally, educational institutions in the country are producing approximately 9,000 IT graduates each year, adding to the talent pool (calculation based on primary data). This talent pool, combined with a growing entrepreneurial ecosystem, has

contributed to the overall growth and potential of the IT industry.

Total contribution of IT service export

Findings of the study show that Nepal is gradually making strides in IT service exports. It has witnessed an increase in software development and digital services through offshore outsourcing. This export activity contributes to the economy and creates employment opportunities for IT professionals. The key findings indicate that the IT service export industry in Nepal is valued at approximately USD 515 million, with over 106 IT export services companies and 14,728 IT freelancers in software development and technology and 51,781 ITeS freelancers engaged in exporting IT services through various digital platforms. The total IT service export reached USD 515 million in 2022, representing a growth of 64.2% since 2021.

The analysis reveals a promising growth trend in both revenue and investment in the IT industry. Over the three-year period examined, there has been a notable increase in revenue generated through IT service exports, indicating a positive trajectory for the industry. The revenue (see Table1) demonstrated that the size of the industry is USD 515 million.

This revenue growth signifies that a high number of companies are successfully offering IT services to international clients, resulting in a higher influx of foreign exchange into the country. This not only contributes to the overall economic development but also highlights the competitiveness and quality of the IT services provided by Nepali companies.

In parallel, the increased investment (Table 2) made by companies operating within the sector further demonstrates the confidence and commitment to the industry's potential. Higher investments indicate that businesses are willing to allocate resources towards expanding their operations, enhancing infrastructure, and improving technological capabilities. These are a positive signs for the long-term sustainability and growth of the IT industry in Nepal.



The key findings indicate that the IT service export industry in Nepal is valued at approximately USD 515 million, with over 106 IT export services companies and 14,728 IT freelancers in software development and technology and 5,1781 ITeS freelancers engaged in exporting IT services through various digital platforms. The total IT service export reached USD 515 million in 2022, representing a growth of 64.2% since 2021.

TABLE 1

IT Service Exported by IT Companies and Freelancers in Nepal by Year (in USD million)

IT Companies			IT Freelancers		ITeS Freelancers		Total Service Exported	
Year	Amount	Growth in %	Amount	Growth in %	Amount	Growth in %	Amount	Growth in %
2020	88	25.8	43.2	4.2	177.1	-7.2	308.3	2.0
2021	111.5	26.8	52.7	21.9	149.7	-15.5	313.9	1.8
2022	201.31	80.5	69.6	32.0	244.5	63.4	515.4	64.2

TABLE 2

IT Service Export Companies' Revenue and Investment in Nepal (in million USD)

Revenue generated by IT companies through IT service export (Million USD)				Investment made by IT companies (Million USD)	
Year	Number of IT company	Average Revenue	Total Revenue	Average Investment	Total Investment
2020	92	0.96	87.98	0.26	24.19
2021	97	1.15	111.53	0.33	32.05
2022	106	1.90	201.27	0.39	41.26

Data from the past three years (106 companies) indicate that Nepal's IT export has experienced significant growth in 2022 (service exports of USD 201million and companies' growth of 80.5% from 2021). In 2020, IT companies exported services worth USD 88 million, representing a growth rate of 25.8% compared to the previous year. In 2021, IT service exports by IT companies reached USD 112 million, indicating a 26.8% increase compared to 2020.

In 2020, the exported services of IT companies and freelancers were valued at approximately USD 308 million. By 2021, IT service exports scarcely increased to USD 314 million, growing by only 1.8%. In 2022, the total IT service exports jumped to USD 515 million at a growth rate of 64.2%. IT companies recorded a growth of 80.5% in service exports compared to 2021, while freelancers' service exports growth stood at 55.2%. The substantial growth in 2022 indicates the increasing demand for services, contributing

to the overall expansion of service exports during that year. However, due to a decline in the number of freelancers in two consecutive years, i.e., 2020 and 2021, their service exports experienced a decline of 5.1% and 8.2% respectively, whereas IT companies maintained positive growth.

Contribution of IT exports to GDP and foreign currency reserve

IT services exports made a contributed significantly to the country's GDP and foreign currency reserves (FOREX). In 2020, it contributed 1% to Nepal's GDP and 2.9% of forex. In the same year,

IT companies made a contribution of 0.3% to the GDP, indicating their share in the overall economic output of the country. Similarly, they contributed 0.8% to the forex, reflecting the portion of foreign exchange earnings generated by their services. In the context of freelancers, they contributed 0.7% to the GDP and 2.0% to the forex. By 2022, these figures increased to 1.4% of GDP and 5.5% of the forex. The companies increased their contribution to the GDP to 0.5% and significantly raised their contribution to the forex to 2.2%. The freelancers contributed 0.8% to the GDP and 3.4% to the forex. Interestingly, the contribution of freelancers to both GDP and the forex was slightly higher compared to those of IT companies.

TABLE 3

Contribution to GDP and FOREX

Year	By IT company		By Freelancer		Total	
	GDP	FOREX	GDP	FOREX	GDP	FOREX
2020	0.3%	0.8%	0.7%	2.0%	1.0%	2.9%
2021	0.3%	1.0%	0.6%	1.9%	0.9%	2.9%
2022	0.5%	2.2%	0.8%	3.4%	1.4%	5.5%

(Source: Field Survey, 2023)

The situation regarding the categorization and segregation of IT export services data in the government system, including the Nepal Rastra Bank (NRB), is currently unclear. There seems to be a lack of a standardized framework, or a specific category dedicated to capturing and recording IT service exports accurately.

The ambiguity in data classification poses challenges in understanding the full extent and impact of the IT industry's contributions to the economy.

Number of Freelancers Exporting IT service from Nepal

The rise of digital platforms and advancements in technology have created unprecedented opportunities for freelancers to offer their expertise and services to clients located anywhere in the world. This has revolutionized the way IT services are delivered and has opened up new avenues for remote work and international collaborations. IT services encompass a wide range of activities, from basic technical support and software development to advanced data analytics, artificial intelligence,

and cybersecurity. The value chain framework provides a structured representation of these activities, illustrating how they interconnect and create value within the IT services sector. At the low-end of the value chain, there are entry-level IT services, such as technical support and help desk services, which involve troubleshooting hardware and software issues, addressing user queries, and providing basic IT assistance. These services form the foundation of IT support and ensure the smooth functioning of IT systems.

Moving up the value chain, mid-level IT services involve software development, application maintenance, and database management. This level requires more specialized skills and expertise in programming languages, software development methodologies, and database management systems. Mid-level IT services contribute to the development and maintenance of software applications that support various business functions.

At the high-end of the value chain, there are advanced IT services that involve complex tasks such as data analytics, cloud computing, artificial

intelligence, and cybersecurity. These services require specialized knowledge and advanced technical skills to leverage emerging technologies and provide solutions that drive innovation, efficiency, and security within organizations.

Table (4) provides a breakdown of the number of freelancers working in various occupations, with a focus on their involvement in the IT service export sector. In 2017, there were a total of 7,734 freelancers working in software development and technology, the highest across different occupations within the IT sector. Sales and marketing support followed closely behind, with 3,843 freelancers. Other significant occupations included writing and translation, which is 2,164, and 1,110 in creative and multimedia field.

The figures show a similar pattern for the year 2022 with the highest number of freelancers working in software development and technology, which is 14,728, followed by 7,355 in creative and multimedia, 7,217 in clerical and data entry, and 5,668 in writing and translation. This shows that there has been a significant increase in the number of freelancers in every category.



There seems to be a lack of a standardized framework, or a specific category dedicated to capturing and recording IT service exports accurately. This ambiguity in data classification poses challenges in understanding the full extent and impact of the IT industry's contributions to the economy.

TABLE 4

Number of Freelancers Exporting IT Services in Nepal by Occupation and Year

Y	Occupation						Total freelancers working in global digital platforms	Estimated freelancer working on other means*	Total freelancers working for IT service export
	Clerical and data entry	Creative and multimedia	Professional services	Sales and marketing support	Software development and technology	Writing and translation in digital platforms			
'17	18	1,110	1,108	3,843	7,734	2,164	15,977	11,583	27,560
'18	1,147	1,511	5,389	3,409	5,031	1,524	18,011	13,058	31,069
'19	4,714	3,862	6,625	3,773	8,783	752	28,509	20,669	49,178
'20	4,705	6,023	820	1,020	9,152	5,323	27,043	19,606	46,649
'21	4,820	5,487	-	2,214	11,158	1,160	24,839	18,008	42,847
'22	7,212	7,355	267	3,326	14,728	5,668	38,556	27,953	66,509

Note: 'Y' denote for year

(Source: OLI, 2023; *Field Survey, 2023)

Average Earnings of IT Companies and Freelancers

In Nepal, there are approximately 66,509 freelancers engaged in the exporting IT and ITeS services from various digital platforms. The survey data shows that a single IT company exported services worth USD 0.96 million on an average in 2020, with an increase of 20% in 2021, accounting for USD1.1 million worth of exports. In 2022, IT service exports rose exponentially by 99% and reached up to USD 1.9 million. Similarly, the study reveals that the freelancers earn an average of USD 4,723 annually through various digital platforms. Details of earnings are presented as Table (5)

TABLE 5

Annual Income of IT worker in Nepal in USD in 2022

	Average annual income in USD
Fresh Entry	2,810
Mid Level IT worker	6,395
Senior Level IT worker	15,322
Freelancers	4,723

(Source: Field Survey, 2023)

Global Scenario and Future Potential

In the digital era of Industry 4.0 and impending Society 5.0, technology is unlocking novel modes of earnings and employment with IT service exports at the core. The breathtaking pace of technology development and dissemination is transforming the way we interact, work, provide and receive services. According to a forecast made by Gartner, worldwide IT spending is projected to total USD 4.6 trillion in 2023, an increase of 5.5% from 2022. Furthermore, the forecasted spending in software and IT services accounts for USD 891,386 and USD 1.3 trillion. This showcases the impact of digitalization on the global economy and its prospective potential. The advantages that stem from the advancement of the ICT sector are being acknowledged by developing countries such as Pakistan, Philippines, Indonesia, Vietnam, and Bangladesh, which have come to regard this sector as a pivotal contributor to their economic growth.

TABLE 6

Worldwide IT spending Forecast (Millions in U.S. Dollars)

Category	2022 Spending (million USD)	2022 Growth (%)	2023 Spending (million USD)	2023 Growth (%)	2024 Spending (million USD)	2024 Growth (%)
Data Center Systems	216,095	13.7	224,123	3.7	237,790	6.1
Devices	717,048	-10.7	684,342	-4.6	759,331	11
Software	793,839	8.8	891,386	12.3	1,007,769	13.1
IT Services	1,250,224	3.5	1,364,106	9.1	1,502,759	10.2
Communications Services	1,424,603	-1.8	1,479,671	3.9	1,536,156	3.8
Total IT	4,401,809	0.5	4,643,628	5.5	5,043,805	8.6

Source: Gartner (April 2023)

Toward that end, various governments have adopted policies to boost the IT sector. In Bangladesh, the BPO industry is currently enjoying 100% tax exemption, and 50% tax reduction for the first three years for foreign employees, among others. In Moldova, the ICT sector accounts for more than 10% of the country's GDP. In India, 7.4% of GDP is contributed by the IT sector, which accounts to USD 194 billion Table (7).

 To accrue economic benefits and not be left behind by technology, the Government of Nepal and Nepali citizens will have to familiarize themselves with the IT industry, and increase their overall engagement with the sector. The current trends of IT service exports by both Nepali IT companies and Nepali freelancers are moving in a positive direction.

TABLE 7

IT Export of South Asian and Eastern European Countries in FY 2021-2022 Volume

Country	IT export service contribution in USD in billion	GDP contribution
India	194	7.4%
Pakistan	2.1	3.9%
Sri Lanka	1.2	0.3%
Bangladesh	1.3	1.1%
Poland	3.1	8.0%
Ukraine	6.8	4.0%
Moldova	0.4	10.0%
Nepal	0.51	1.4%

It is imperative that developing countries like Nepal also adapt to the digital era. To accrue economic benefits and not be left behind by technology, the Government of Nepal and Nepali citizens will have to familiarize themselves with the IT industry, and increase their overall engagement with the sector. The current trends of IT service exports by both Nepali IT companies and Nepali freelancers are moving in a positive direction. By 2022, Nepali IT companies had invested USD 41.26 million in the country and have generated a revenue of USD 515 million. Breaking down the data generated for this report, the IT service exports contributed 1.4% to the country's GDP, which accounts to USD 0.51 billion and 5.5% to the foreign currency reserve. The next economic frontier along with the hydropower and tourism industry is the IT sector. Given it is extremely difficult for Nepali products to compete with Indian and Chinese products in the global manufacturing market, weightless and borderless trade of IT service exports presents a far more competitive advantage to Nepal. Nepal can transition from an economy reliant on labor exports to service exports as technology has made more services tradable, creating more jobs within the country and addressing the problem of youth "brain drain".

SECTION THREE

Employment Scenario of IT Service Exports

The IT service export industry in Nepal provides a wide range of employment opportunities. With the industry's continuous growth and evolution, individuals with various skill sets and expertise can find suitable roles within the sector. Each year, approximately 9,000 graduates enter the IT job market, including approximately 7,085 in the IT sector. Additionally, 35.3% of graduates from other sectors also enter the IT industry, demonstrating both its attractiveness and potential for career growth. The development of digital technologies has revolutionized the way people work, allowing them to serve international and domestic clients at flexible hours through remote working arrangements. This has overcome geographical barriers and disrupted the traditional 9-to-5 working model.

During the COVID-19 pandemic, remote working

and the gig economy gained prominence as people adapted to new ways of working. The gig economy has also emerged as a new avenue for both part-time and full-time freelancers around 66,509 to make gig work as their primary, secondary, or additional source of income, as discussed in Section 2 of the report.

Given this context, this section focuses on presenting the employment scenario of the IT service export industry in Nepal. It highlights the significant number of graduates entering the market, the flexibility provided by remote working, and the opportunities available in the gig economy. By showcasing the diverse employment options and the industry's adaptability to changing work dynamics, this section aims to provide a comprehensive overview of the employment landscape in the IT service export sector in Nepal.

Educational Background

In the IT service export industry, different levels of educational qualifications are required to meet the diverse needs and demands of the sector. The table shows the types of educational commonly associated with IT service export services employees in the context of Nepal, wherein the majority of employees hold a Bachelor's degree.

TABLE 8

Types of Educational Level of IT Service Export Employees

Types of IT education level	Percentage
No specific degree	18.5
Certification with IT tech skills	16.0
Diploma level	1.2
Bachelor level	61.7
Master level	2.5

(Source: Field Survey, 2023)

The IT service export industry thrives on a diverse range of educational backgrounds as it bringing together different perspectives and expertise for the sector's growth and success. The table presents the types of educational backgrounds found among individuals working in the IT service export services in Nepal.

TABLE 9

Types of Education Background of IT Service Export Services

Types of IT educational background	Percentage
Diploma in IT	1.2
Computer Science, Engineering, Application	29.6
Software engineering	39.5
Information Management, Technology	4.9
Advance courses such as cyber security, data science, cloud computing, AI etc.)	7.4
Professional Courses with certification	11.1
Others	6.2

Today the country has 110 educational institutions offering IT-related courses in bachelor and master's level (secondary review during the study), including Bachelor of Information Technology, Bachelor in Computer Science and Information Technology, Bachelor in Cyber Security and Digital Forensics, Master in e-Governance, Master in Information Technology Management, among others. Similarly, hundreds of training institutions offer IT related courses. The increase in the number of institutions established to meet the demand for IT education in Nepal is an encouraging development. The survey mentions that 64.7% of freelancers completed courses related to IT and 93.7% freelancers pursued their course in Nepal. On the question of Nepal's bachelor courses producing a competent workforce, 82% of freelancers felt that it barely met their required standard, suggesting there is some room for improvement. Regarding school level education (Class 1 to 12), 88% of the freelancers were dissatisfied from their education.

The survey also outlined the imbalanced gender disaggregation on the freelancers' education: of the 236 freelancers that had obtained a bachelor's degree, only 16% were female. Furthermore, only 37 freelancers had completed their masters and only 5 of these were females, or 13.5%. This trend indicates there is unequal opportunity or awareness about the potential of jobs in IT, perpetuated by social norms and more "traditional" educational pathways.

While hiring new employees, software engineering is the preferred IT educational background that IT companies seek from the labor market. The survey found that 39.5% of the respondents (IT companies) are keen on hiring IT workers with an educational background in software engineering, followed by those with 'computer science, engineering application' background as the second choice at 29.6%. The survey also found that 61.7% of IT companies had employees with a bachelor's level of education.

Recruitment

In the survey, 69.1% of the IT companies showed no preference in hiring either foreign or Nepal educated professionals for the technical positions. However, 39.5% of the IT companies prefer Nepal-education technical staff. In terms of the hiring procedure, 74.1% of the IT companies looked to hire employees through an open and competitive recruitment process. Furthermore, for IT companies, personal/professional references and head hunting ('poaching') are other two prominent mechanisms of recruiting new employees, which stands at 66.7% and 59.3%, respectively. Many IT companies are ' vexed' with the issue of 'poaching' in the sector.

In Nepal's IT sector, the companies generally hire regular staff for managerial tasks and full-time technical staff, accounting for 89.9% and 88.6%

of employees, respectively. This showcases their preference to hire regular and full-time staff over part-time and outsourced staff. As with education, the surveys depicts a gender divide in the number of hired employees. There is a stark gender disparity in terms of hiring regular and full-time staff, favoring men over women. As per the survey, 84% of the employees (both full-time managerial and technical staff) are men while the remaining 16% are women. On the other hand, part-time technical staff are somewhat evenly proportioned between men and women. This hints at gender equality being relegated to the part-time technical staff as a tokenistic gesture. Furthermore, part-time technical staff are limited in number as they are not the preferred choice for hiring when IT companies are open for vacancies. A more inclusive digital ecosystem with women-centric digital skill training will unfold greater economic growth in Nepal by increasing diversity and boosting competition. NGOs including Women in Technology, Girls in Tech and Shequal Foundation are making considerable efforts to promote women in the IT sector.

 **The survey depicts a gender divide in the number of hired employees. There is a stark gender disparity in terms of hiring regular and full-time staff, favoring men over women. A more inclusive digital ecosystem with women-centric digital skill training will unfold greater economic growth in Nepal by increasing diversity and boosting competition.**

Income

On average, the yearly salary for IT workers in Nepal is USD 2,810 (approx. NPR 3,65,300) at the entry level, USD 6,395 (approx. NPR 8,31,350) for mid-level, and USD 15,322 (approx. NPR 19,91,860) for senior level. Currently, the estimated number of jobs generated by IT service

export companies are 7,228, with an additional of 66,509 online freelancers. Average income of freelancers is USD 4,723 (approx. NPR 6,13,990) per year. Seventy percent of these freelancers had completed courses related to IT with 57% believing that what they were taught in college is being applied in their work 'only sometimes'. Regarding how the freelancers seek opportunities, 57% of the freelancers use LinkedIn as a medium to come in contact with their clients and 71% of the freelancers get hired on the project-based format by their clients or employers.

Skills

The mere presence of a large human population does not inherently lead to a society that is skilled or digitally literate. As mentioned by the World Bank report, the biggest barrier to internet usage in South Asia is digital literacy. In Nepal, the Digital Nepal Framework (DNF) published in 2019 has also identified low digital literacy as a hindrance to reap benefits through technology. The issue of being a digitally illiterate person is more pronounced in rural Nepal, further exposing Nepal's digital divide. Digital skills, digital infrastructure, access to affordable broadband and digital gadgets, and employment through the IT sector go hand in hand (Giri, 2018). Additionally with English being the most widely spoken language globally, fluency in this language becomes a major prerequisite for outsourcing IT companies as they have to deal with international clients. Nepal has the potential to be an outsourcing destination country with its large urban-centric, English-speaking youth. However, in the EF English Proficiency Index, Nepal features in the low proficiency bracket and is ranked 65th among 111 countries. According to the same index, Nepal is ranked 9 of 24 countries in Asia (EF EPI, 2022).

People without the required skill-sets will be left behind while only a certain section of the society accrues economic benefits in the digital age. Nepal's IT sector will find it challenging to compete globally if up-skilling and re-skilling are not prioritized (Dixit, 2023). Within Nepal, IT companies are not satisfied with the results they

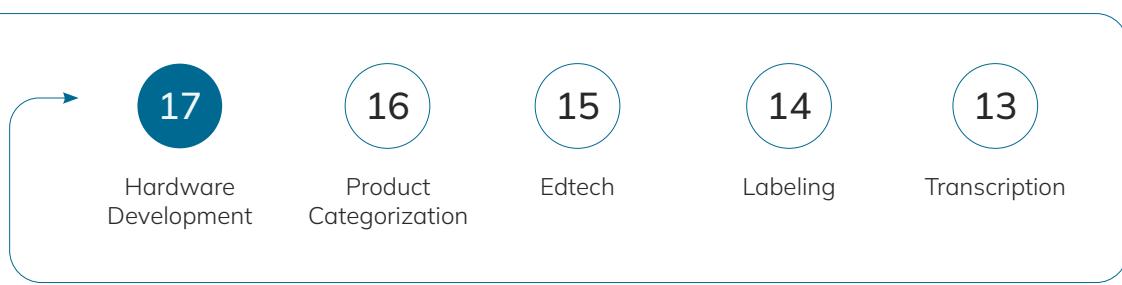
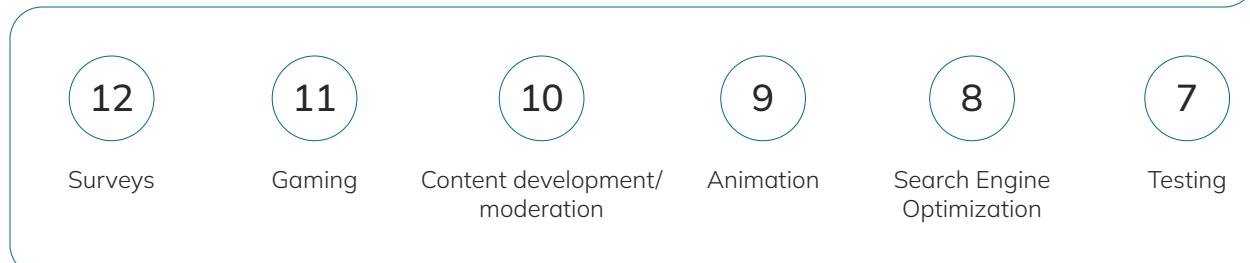
receive from domestic outsourcing. Limited skills and competence followed by lack of professionalism are the two major hurdles faced by the IT companies while outsourcing work to Nepali IT worker force. In the survey, 66.7% of the IT companies mentioned that the limited level of skills and competence of the Nepali IT workforce is a major challenge in domestic outsourcing. This is followed by other challenge of lack of professionalism shown by the Nepali force faced by IT companies at 53.1%. Low level of skills is a major hindrance for the Nepali workforce to compete in the global digital economy. Regarding freelancers, 81.5% rely on online learning mechanisms for up-skilling and re-skilling themselves, 48.1% say they update themselves about the advancements in technology, and 42.1% rely on training. However, 63.6% and 56.2% of the freelancers feel that high speed internet and vocational programs could enhance their working ability and output.

When the freelancers were asked on the major components that are instrumental in their work, 67% mentioned quality of human resource as a major component. 'Clarity on the scope of work' and 'negotiations' were other two important factors in their work, as 63.3% emphasized the former while 61.3% stressed on the latter. In self-reported competencies, the highest number of freelancers feel competent in coding, followed by programming, design and software development. A significant number of freelancers also feel competent in social media, video editing, testing and search engine optimization, whereas only a small proportion feel competent in areas such as Transcription, Labeling, Edtech, Product categorization and Hardware development

FIGURE 2

Areas of Work in Information and Technology Perceived by Freelancers as Their Expertise

Top Priority



Less Priority

According to the IT companies, in terms of skills of senior-level employees, 53.1% are excellent, 28.4% are average and the remaining 18.5% are below average (Table 11). Regarding the level of competence, 70.4% are average, 21% are excellent and the remaining 8.6% are below average. To upskill senior employees, it requires only a month of training according to 72.5% of the IT companies. In terms of skills of mid-level employees for IT companies, 92.6% are average, 4.9% are excellent and the remaining 2.5% are below average. Regarding the level of competence, 51.8% and 40.7% are average and below average,

respectively. To upskill mid-level employees, 86.4% of the IT companies feel that a 3-month training would upgrade them. In terms of skills, 63% of the IT companies feel that entry-level employees are below average. The remaining 28.4% and 8.6% entry-level employees are average and excellent, respectively. In terms of their level of competence, 64.2% are below average, 29.4% are average and the remaining 6.2% of fresh employees are excellent. To upskill fresh entry-level employees, 70.4% of the IT companies feel with a 6-month of training they will become competent.

TABLE 10

Level of Employees as Perceived by IT Export Service Industry

Level	Perceived Excellent %	Perceived Average %	Perceived Below Average %
Skills			
Entry-level	8.6	28.4	63
Mid -level	4.9	92.6	2.5
Senior-level	53.1	28.4	18.5
Competence			
Entry-level	6.2	29.4	64.2
Mid-level	7.4	40.7	51.8
Senior-level	21.0	70.4	8.6

Source: Field Survey, 2023

TABLE 11

Training Duration for Employees in IT Service Export Industry

Level	Training duration	Percentage of respondent (majority)
Entry-level	6 months	70.4%
Mid -level	3 months	86.4%
Senior-level	1 month	72.5%

Source: Field Survey, 2023

In the order of priority, the expected software competence by IT companies from the labor force are: UI/UX, SQL, Full Stack Web Developer, Python, DevOps and Automation Testing. These skills are the basic requirement of the IT companies in terms of priority, with UI/UX being the top priority followed by the remaining skills. The expected and required soft skills by IT companies from the labor force prioritize communication as the foremost skill, followed by teamwork, time management, and problem-solving. Additionally, creativity and innovation are highly valued in the industry.

FIGURE 3

Software Competencies Anticipated from Nepali Workforce

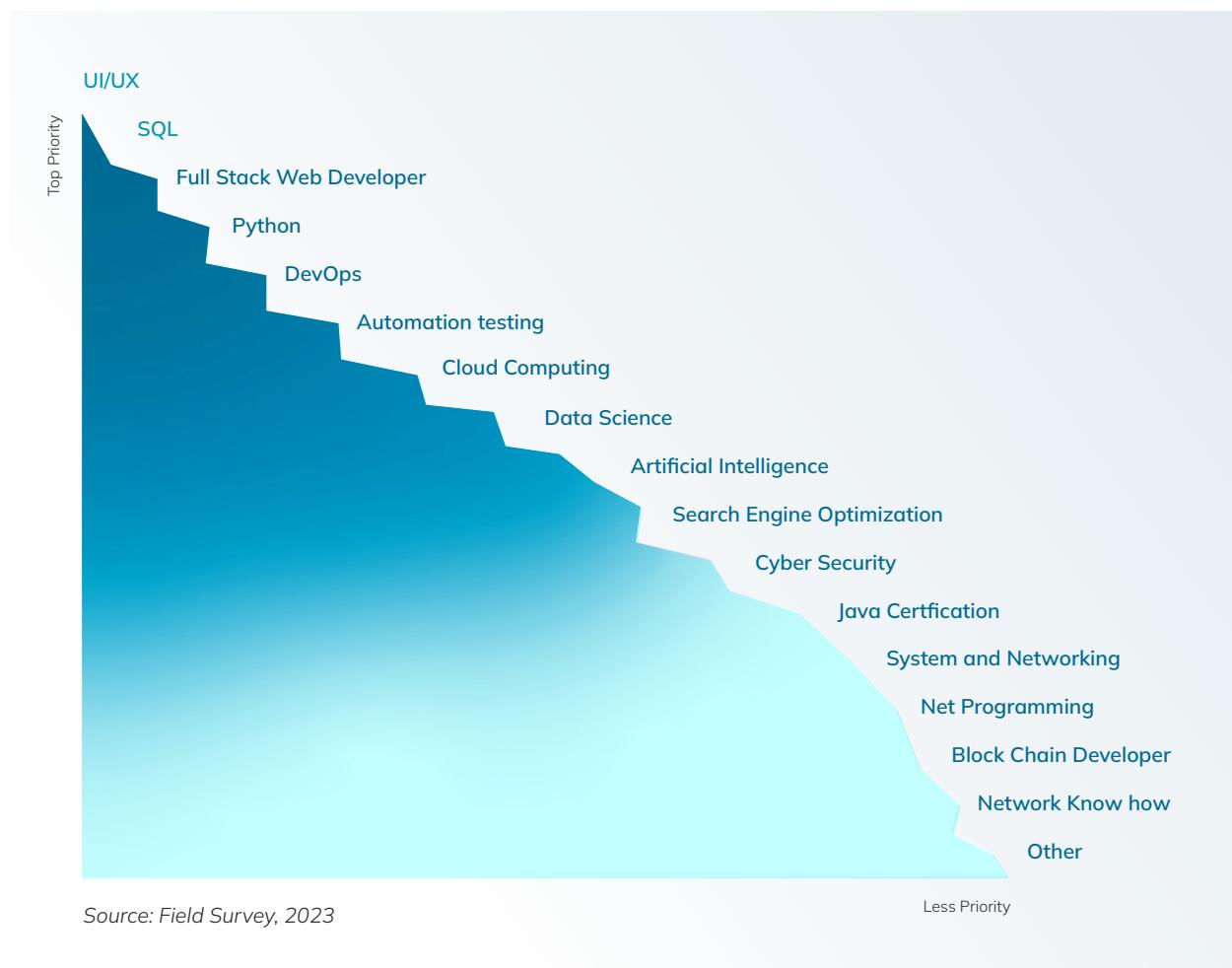
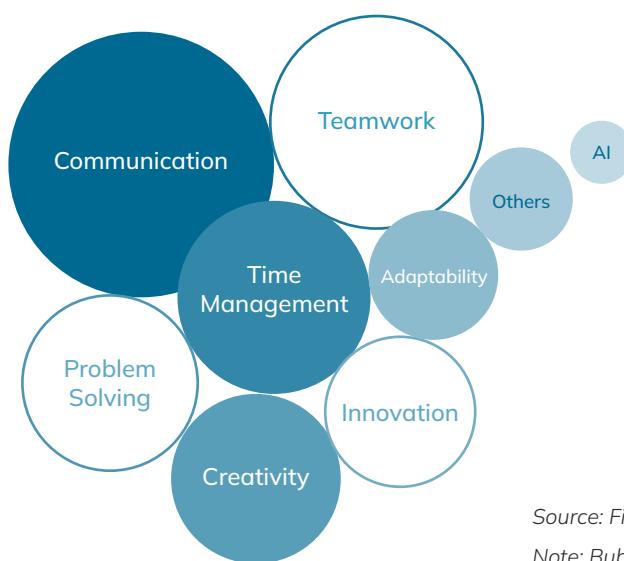


FIGURE 4

Soft Skills (Transverse Skills) Expected from the Nepali Workforce



Source: Field Survey, 2023

Note: Bubble sizes are based on the level of perception

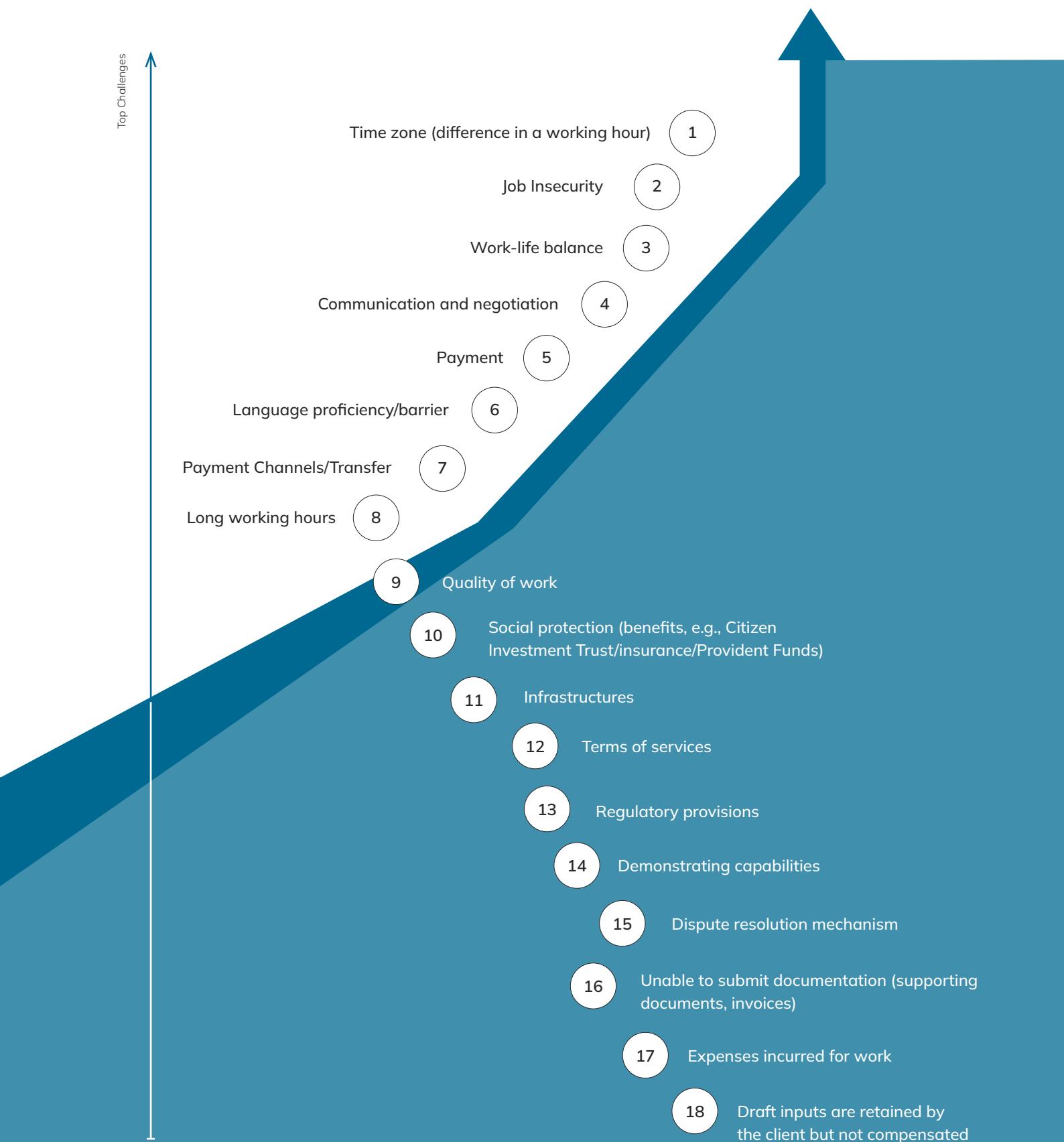
Motivation

A 1% final tax on income generated from IT services export (received from formal channels) was introduced in the FY 2021-022. The 1% tax rule has incentivized freelancers to export their services through freelancing over the idea of working with Nepal IT companies as freelancers prefer the lump sum salary they directly receive from foreign companies. When respondents (freelancers) were questioned on the reason for their motivation to engage in freelancing, 54.5% and 52.9% of freelancers cited "high pay" and "additional source of income" were their inducement, respectively. Furthermore, in regard to the mentioned question, 83.4% prefer "flexible working hours". However, 21% of the IT companies feel that this has disrupted the HR management system and is against the interest of the organized IT sector.

Challenges for freelancers are numerous. "Time zone" (difference in working hours) and "job security" were the two most prominent challenges (Table 15) as attested by 51% freelancers. It was followed by 40.7% of the freelancers mentioning that 'work-life balance' was an issue. Other challenges mentioned by 36% and 34.7% freelancers were 'communication and negotiations' and 'payment' respectively.

FIGURE 5

Prominent Challenges in IT Service Export Industry as Perceived by Freelancers



SECTION FOUR

Gaps and Challenges

The IT export industry in Nepal has significant potential to contribute to economic growth and generation of employment opportunities. The increasing shares of income, employment, and foreign exchange in the country's economic parameters reflect the growing importance of IT service export. While IT service export offers numerous opportunities for growth, revenue and employment opportunities, there are several gaps and challenges that need to be addressed. Considering such issues, this study has sought to determine the major challenges and gaps in Nepal IT export service industry. Inadequate digital infrastructure, limited policy measures, a shortage of skilled human resources, and insufficient efforts to harness the country's IT capabilities are some of the challenges. Additionally, there are other drawbacks in Nepal's IT industry, such as misaligned tax relief mechanisms, restricted payment systems, improper institutional arrangements, and other broader social factors.



Infrastructure

The survey findings reflect the viewpoints of Nepali IT companies and freelancers operating in the IT service export industry regarding critical infrastructure such as electricity, internet access, data infrastructure, and physical infrastructure.

Electricity

Based on the survey results, it was found that 75.9% of the companies rated electricity services as above average. However, 23.4% of the companies expressed their dissatisfaction with electricity services due to unannounced power cuts and unexpected interruptions that resulted in equipment damage. Similarly, 30.3% of the freelancers rated the electric services as poor due to their personal experiences of abrupt power outages that disrupted their calls with international clients and caused harm to their personal devices like laptops and mobile phones.

Internet

It is evident from the study that only 43.2% of the company respondents expressed

satisfaction with the internet services available in the country, whereas 56.8% of them feel that the current internet services do not meet their requirements. Similarly, a majority of freelancers, 63.6%, face challenges with internet connectivity while working. This shows that good quality internet service is the area where one of the reform strategies can be directed.

Data Services

According to the survey, 46.9% of the companies surveyed utilize data infrastructure services within Nepal, while the remaining 53.1% depend on services from abroad. Among the companies that rely on data infrastructure services outside the country, a significant portion comes from the United States, India, and Europe. The 58.8% surveyed companies emphasized the significance of having a dependable data center within Nepal, disaster recovery centers, cloud services, and a high-capacity information highway.

Physical Infrastructure

50.76% of the companies expressed that the cost of setting up an office in Nepal is relatively high for both established companies and startups. Additionally, the quality of available equipment, including hardware, servers, computers, laptops, routers, storage devices, switches, firewalls, and networking equipment, was reported to be poor or of low quality. The companies also highlighted the high cost of furniture and fixtures, which were deemed unnecessarily expensive compared to other countries. More than 63.4% of the companies believe that startups in the IT service export sector could be sustained if they were provided with free working spaces. Similarly, 43.1%

of the freelancers' face challenges related to working space and the high costs associated with acquiring equipment and tools necessary for their work.

Another challenge is that global companies often choose to provide dedicated computers to their clients as a means to safeguard sensitive company data. While clients typically face no issues when bringing these company laptops to Nepal, challenges arise upon returning to their destination country of work, as Nepal does not produce laptops and customs cannot allow those laptops to return back to destination country. This situation introduces a potential obstacle in preserving the confidentiality of the company's private information, as clients may face questioning due to the laptops' origin.



Policy and Regulations

A significant gap in the IT service export industry is the lack of clear and up-to-date policies that specifically address its unique requirements. About 70% of the respondents of the study said that Nepal's policy framework is not framed well to develop the IT sector. The study revealed that insufficient intellectual property protection, inadequate regulations for data privacy and security, and indications of potential restrictions on cross-border data flow in draft IT bills are some of the key concerns that need to be addressed. In the budget for Fiscal Year 2022/23, waived off the minimum threshold for foreign direct investment (FDI) in the IT sector and

put a 50% tax relief for Business Process Outsourcing (BPO) companies exporting their services (Budget 2023/2024). Similarly, the monitory policy 2080/81 (2023) seeks to streamline foreign currency transactions for service exports, making it easier for IT companies to receive foreign earnings electronically. Additionally, it offers a foreign exchange facility, allowing these companies to set up offices abroad, pay foreign entities, transfer funds overseas, and purchase necessary software or equipment. These adjustments in the budget will potentially boost the IT service export. However, some tax relief measures do not encompass the smaller IT companies or start-ups, for example Nepali IT companies with 300 or more staff are eligible for tax rebate. For

this, one of the participants of this study and the owner of a company said that "in Nepal, most IT service companies employ a limited number of employees hovering from 15 to 20 and only a handful employ more than 100 staff. Therefore, such tax relief has a minuscule effect on smaller companies and provides no incentive for tech startups that require seed money". The survey findings also shed light on the perspectives of Nepali IT companies and freelancers regarding general policies and regulations, tax regulations, and the annual renewal process.

Awareness on policies

Among IT service export companies in Nepal, there is a limited understanding of policies and regulations. When asked to companies about the existing policies and regulations related question, only 23.5% of the companies were found to have a clear understanding of the existing regulations, while the majority, 76.5%, either lack awareness of the system or do not consider it a significant concern.

Tax

According to the survey, the majority of companies, specifically 82.7%, reported no issues regarding tax settlement. However, 11.3% of them faced issues such as hassles in public service delivery. Furthermore, the implementation of the 1% tax rate on the income of export service companies had a positive impact on 23.5% of the companies, while 12.3% experienced a negative impact because many senior-level technical staff expressed their preference to work directly with clients abroad as freelancers. Additionally, 64.2% of the companies were indifferent to the tax implementation.

Regarding freelancers, the survey revealed that 57.9% of them have limited awareness of tax regulations pertaining to IT service exports. 18.9% of them reported paying taxes in Nepal, while 25.3% stated that they do not pay taxes, and 55.9% were unwilling to provide an answer. Additionally, a significant majority of freelancers (85.3%) expressed their willingness to pay taxes if the government demonstrates sincerity in providing benefits and supporting its citizens.

Annual Renewal Process

In relation to the annual renewal process of companies, the survey indicates that 90.1% of the companies do not consider it a significant hurdle. However, in a depth case analysis among companies, some of them reported that the process involves additional paperwork and red tape, which they find to be restraining and time-consuming factors.

Government Support and Political Commitment

Regardless of the quality and informed nature of a policy, its effectiveness can be compromised without proper implementation plans and support from politicians and bureaucrats. The survey also gathered opinions from IT companies and freelancers about government support and political commitment toward the Nepali IT service sector. The leaders of the majority of companies (93.8%) perceive that adequate political commitment has not been realized. Only a small proportion, 6.2%, believe that there are some leaders who are actively focusing on the growth of the IT sector. One of the IT experts suggested that if political leaders recognize the importance of the sector, more opportunities can be created.

Perceptions on Business Climate

The survey findings reveal that a significant majority (specifically 87.7% of the companies' respondents) believe that the institutional awareness may not have been favorable towards IT service exports. In contrast, some companies, 12.3%, perceive that they have received support from government authorities in all aspects of their IT service exports. One of the IT companies' owners, a participant of the study, reported that receiving support for government service is time consuming. In their view, the IT sector is not the priority of the government.



Human Resources

The quality of human resources, particularly in the IT sector, is traditionally a matter of concern in Nepal. The survey further emphasizes the need to prioritize human resource development in the country to facilitate the smooth growth and expansion of emerging sectors like the IT industry.

According to the survey, a significant majority (74.1%) of respondents from companies perceive that academic institutions in Nepal lack the capability to produce human resources that can effectively contribute to the global IT workforce. Likewise, 64.2% of

respondents identify this as one of the major hurdles in scaling the industry.

To enhance human capital development, the survey highlights the importance of a robust education system, with 56.2% of freelancers stressing that quality education and additional training would greatly enhance their productivity.

Overall, the survey underscores the critical need for addressing the quality and adequacy of human resources in the IT sector through improvements in the educational system and additional training opportunities.



Payment System

The findings from both the company and freelancer surveys indicate the presence of several gaps in the payment system of the IT industry. The specific issues mentioned vary among

companies and freelancers, highlighting the diverse challenges faced within the industry.

Companies Perspectives

Around 50.6% of the companies operating in Nepal are encountering challenges related to the payment system. The most common method of receiving payments from foreign destinations is through bank transfers, accounting for 92.6% of the transactions. The majority of companies receive their payments within a week, and instances of fraud or financial loss during transactions involving third-party intermediaries (mid-market) are relatively low. However, 30.9% of the companies express difficulties in conducting transactions even through

formal channels such as banks and financial institutions.

To address these challenges, it is crucial for banking and financial institutions to be well-informed about global IT industry trends and practices. Participants in the survey highlighted various issues, including difficulties in receiving payments from host countries, prolonged holding of costs by clients, high transfer costs, nostro charges, lengthy verification processes, and clients' lack of familiarity with SWIFT (Society for Worldwide Interbank Financial Telecommunication) abroad.

Only a small percentage of companies, approximately 2.5%, utilize remittance companies and digital money transfer mechanisms for receiving funds.

TABLE 12
Reinvestment of Revenue Outside the Country

Reinvestment outside the country (multiple response)	%
Stock market	18.2
Digital assets	27.3
Bank account	54.5
Equity in other companies	27.3
Other	9.1

Source: Field Survey, 2023

Freelancers' perspectives

The survey findings reveal that a significant majority of freelancers, 88.9% receive their payments within Nepal, while approximately 3% are paid from abroad, and 8.1% receive payments from both domestic and foreign sources. When it comes to payment methods, a high percentage of freelancers,

98.3% prefer formal channels for their payments. Among these channels, bank transfers are the preferred method for 83.8% of freelancers, while 24.2% receive their earnings through remittance services.

In terms of payments, a noteworthy 81.1% of freelancers reported receiving their payments on time, indicating a satisfactory payment schedule. However, it is worth

mentioning that 18.9% of freelancers faced delays in receiving their payments, and an alarming 11.1% did not receive payment as stipulated in their contracts. These findings indicate a certain level of exploitation by clients, as 18.9% of freelancers expressed being subjected to payment schedule and pay scale issues, where clients did not adhere to the agreed-upon terms in their contracts.

Regarding the frequency of payments, the majority of freelancers, accounting for 38.4%, reported receiving their payments upon completion of their tasks, followed by monthly transfers. Notably, a significant proportion of freelancers, 78.1%, received their payments within a week of the transfer, suggesting a relatively prompt payment process in most cases.



Institutional Arrangement

Efficient institutional mechanisms provide strong support for the growth and expansion of important economic sectors. In Nepal, the Ministry of Communication and Information Technology (MOCIT) is responsible for promoting the development of the IT industry. In particular, the Department of Information Technology under the MOCIT has several goals set to foster the expansion of the IT sector. These goals encompass solving social issues such as poverty through the use of IT, creation of e-Infrastructure including the promotion of e-governance, development of Information Technology Enabled Services (IT-ITES), and the development of an industry secure cyberspace. In order to achieve these goals, the department has prioritized the creation and implementation of IT law, plans, and policies.

The survey aimed to assess the level of government support for the IT sector, and the results shed light on the perceptions of the respondents. Among the company

respondents, a significant majority, 79%, believed that having a separate government entity dedicated to the IT sector was necessary. Additionally, 60.5% of companies expressed the need for autonomous entity to support and foster the IT sector in Nepal.

Furthermore, the survey results indicated that 70.4% of the respondents recognized the potential role of IT industry associations, such as NAS-IT, in supporting and strengthening the IT sector and promoting IT service exports in the country.

The institutional setup in other South Asian countries serves as a notable example of the significance of having a dedicated government body or autonomous entity in Nepal. For instance, Pakistan has established a Ministry of IT and Telecommunications, which has played a central role in facilitating the growth of the IT industry in the country. The ministry has actively engaged with the IT industry and other relevant stakeholders, ensuring strong coordination and support (Ministry of IT & Telecommunication, 2022). Likewise, Sri Lanka's Ministry of Technology has demonstrated a proactive approach

in introducing initiatives, for example, the National Future Talent Initiative (NFTI) has been launched to promote the development of IT skills and knowledge among young people, providing them with opportunities to contribute to the growth of the IT industry for the enhancement of the country's IT sector, often in partnership with the private sector.

These examples underscore the importance of having a dedicated government body or autonomous entity in Nepal. Such a dedicated entity could provide focused support, coordination, and strategic initiatives to bolster the growth and competitiveness of the IT industry, aligning with the goals of national development and economic prosperity.



Social Factors

The quality of work can be significantly influenced by various social factors, including cultural norms, working culture, and the mindset of workers. When individuals need to collaborate with colleagues or stakeholders from different countries, cultural differences can have a profound impact on work dynamics. In Nepal, a culturally diverse country where people from various communities and socio-cultural backgrounds coexist, social factors play a key role. The nation celebrates numerous festivals annually, and different ethnic groups have their distinct cultural practices. These festivals and traditions reflect the country's diverse social fabric, which in turn presents both opportunities and challenges when it comes to inclusive and sustained growth. Regarding the influence of social factors on the IT industry in Nepal, the survey reveals a mixed perception.

Cultural Impact

The cultural context of Nepal presents several challenges for employers and

employees in the IT sector, particularly when it comes to balancing the celebration of festivals with meeting their work deadlines. Around 41.8% of freelancers identified this as a challenge. Additionally, since the work-from-home culture is not yet widespread, 26.6% of freelancers are facing difficulties in performing their tasks from home due to home environment issues and misconceptions about the nature of their work. Furthermore, trust, language barriers, and perceptions of work quality were identified as the primary issues related to IT service exports in Nepal.

Mindset

51.9% of the company respondents regarded the Nepali mindset as favorable for IT service export businesses, while 45.7% of the respondents considered it a barrier. Overcoming these mindset barriers requires a shift in thinking and a proactive approach towards embracing opportunities and adapting to global trends. It involves fostering a growth mindset that encourages continuous learning, embracing change,

taking calculated risks, and building confidence in one's abilities. Encouraging a culture of openness, innovation, and global perspective within the industry can help overcome these mindset barriers and propel the IT service export industry towards greater success.

Work culture

49.3% of the company respondents perceive the working culture of Nepali IT workers as conducive to IT service exports, whereas 49.4% of the respondents view the work culture of Nepali employees and

stakeholders as presenting several obstacles. Overcoming these requires a proactive approach from both organizations and industry stakeholders. It involves fostering a collaborative work environment, improving communication channels, promoting diversity and inclusion, addressing work-life balance concerns, providing professional development opportunities, and promoting a healthy work-life integration. By addressing these obstacles, the IT service export industry can create a positive and thriving work culture that contributes to the success and growth of the sector.



In Nepal, a culturally diverse country where people from various communities and socio-cultural backgrounds coexist, social factors play a key role. The nation celebrates numerous festivals annually, and different ethnic groups have their distinct cultural practices. These festivals and traditions reflect the country's diverse social fabric, which in turn presents both opportunities and challenges when it comes to inclusive and sustained growth

SECTION FIVE

Pathway to Growth

Nepal's IT sector has been lacking behind in several areas, as outlined in section 4 of this report. In order to address these gaps and challenges, this section presents recommendations drawn from the survey and discussions with IT service export companies, freelancers, and industry experts. It also highlights best practices within the country and draws lessons from other countries. The recommendations put forth in this section can enhance growth of the weightless and borderless IT export service proving invaluable for policymakers, bureaucrats, freelancers, investors, donors, and other stakeholders involved in government organizations related to the IT industry.

This report also highlights a selection of good practices of companies and freelancers. To respect privacy and maintain the study's impartiality, pseudonyms have been used instead of disclosing specific names. This approach ensures that the focus remains on the practices themselves rather than promoting or prioritizing particular companies. By showcasing these good practices, the report aims to provide relevant learnings and insights that can be beneficial to the overall growth and development of the IT industry. The recommendations are focused on seven major areas: (1) Infrastructure Development; (2) Investment and Financial Support; (3) Human Capital Development; (4) Policies and Regulations; (5) Branding and Promotion of Nepal's IT Industry; (6) Coordination and Collaboration; (7) Innovation

Infrastructure Development

According to the findings of this study, reliable supply of electricity and internet connection are major challenges in Nepal. With the growing demand for IT services, strengthening IT infrastructure should be the primary focus of multiple stakeholders including government, regulatory bodies as well as telecommunication companies. These stakeholders must work together to identify the infrastructural gaps, prioritize investment, and develop strategies for infrastructure development. Efforts should be undertaken to enhance the strength of the wireless connectivity. The need

for a borderless banking infrastructure arises from the global nature of financial transactions, demanding a seamless and accessible system that transcends geographical boundaries and enables efficient cross-border operations. In Nepal, it is vital that support is provided not only for software development but also for the development and manufacturing of hardware components. This will a conducive ecosystem that promotes technological advancement and sustainable economic growth.

 According to the findings of this study, reliable supply of electricity and internet connection are major challenges in Nepal.

Additionally, the number of data centers in the country must be increased to secure data storage and management as well as enable remote access to data, disaster recovery and energy efficiency. India is home to more than 80 data centers and continues to attract domestic and foreign investment as opposed to the dozen data centers in Nepal as of 2021 (Corner, 2022). It is imperative for the government to prioritize the establishment and development of IT parks, incubation centers, and innovation hubs that not only enhance the physical and digital infrastructure but also offer competitive pricing. These dedicated spaces will serve as thriving ecosystems for startups, providing them with essential resources, mentorship, and networking opportunities. Additionally, these facilities will also cater to the needs of freelancers, providing them with conducive work environments that promote efficient and high-quality outputs. By fostering the growth of startups and supporting freelancers, these initiatives will contribute significantly to the overall economy of the country.

Investment and Financial Support

In order to boost the growth of Nepal's IT sector, it is essential to provide the industry with adequate

financial support across three major areas: (1) Research and Development; (2) Investment support to start-ups and scaling up the successful companies; and (3) Creation of efficient payment systems. Based on the responses of the survey, both the government and financial institutions can play a huge role in this. Adequate resources should be allocated to support R&D initiatives in the IT industry. This can be done by separating grants or providing subsidies to companies that are developing and implementing innovative strategies. Banks and financial institutions can also provide low-interest loans to companies for the specific purposes of pursuing research endeavors and developing cutting-edge technologies.

The government should also play an active role in encouraging start-ups in the IT industry. With enough financial support, start-ups can bring in new and innovative ideas that can have a ripple effect throughout the industry. For this to take place, the government can introduce funds that are tailored at meeting the needs of new companies. An excellent example for this is India where the government started the Startup India Seed Fund Scheme under which financial

assistance is provided to eligible companies by eligible incubators across India (SISF, 2021). In addition to government initiatives, banks can also provide specialized financial services in the form of loans, credit facilities, and investment options.

The recent government budget 2023/2024 has taken a positive step towards addressing the issue of Foreign Direct Investment (FDI) in the IT industry by reducing the minimum FDI requirements and streamlining the approval process. These measures are expected to attract more foreign investments into the country's IT sector. In addition to these efforts, another effective strategy to further encourage FDI is to allow Nepali tech companies to establish subsidiaries and form joint ventures with international partners. This approach has the potential to provide numerous benefits, such as knowledge transfer, access to new markets, and enhanced technological capabilities. By facilitating partnerships between Nepali companies and foreign investors, the government can create a conducive environment for FDI inflows and promote economic growth in the IT industry. Furthermore, the recent government budget introduced a policy that allows for the allocation of a minimum



BOX 1

Growing Presence: Big IT companies make inroads into the market

Company YY has achieved remarkable progress in Nepal's software industry, positioning itself as an exemplary case that showcases the potential for the entry of big IT companies from renowned IT hubs around the world. This influx of international IT companies not only drives the growth and development of the local industry but also holds the potential to significantly increase the inflow of foreign currency into Nepal.

The presence of big IT companies like YY brings numerous advantages to the country's software industry. Firstly, their entry signifies a transfer of advanced technological knowledge, expertise, and best practices, which can greatly enhance the capabilities and competitiveness of the local workforce. This exchange of knowledge contributes to upskilling and capacity building within the industry, enabling Nepali professionals to acquire valuable insights and refine their skills. Additionally, the entry of big IT companies from established IT hubs serves as a testament to the potential and attractiveness of Nepal as an investment destination. It sends a positive signal to other global players, encouraging them to explore opportunities and invest in the country's IT sector. This influx of foreign direct investment not only fosters economic growth but also leads to job creation, infrastructure development, and the overall expansion of the industry.

of 10% of profits towards foreign investment objectives. This policy adjustment presents significant opportunities for companies to expand their presence and operations internationally, capitalizing on the advantages offered by global markets and establishing a robust presence beyond national borders. However, the effective implementation of this policy remains a notable challenge that needs to be addressed, as seen in its relatively low.

Additionally, the provision of early-stage funding for IT startups holds significant potential for fostering growth in Nepal's IT sector. By facilitating access to private capitals such as private equity, venture capital, angel investors, corporate venture capital, growth equity, and crowdfunding, Nepali IT startups can receive valuable support to fuel their development. This form of funding can greatly contribute to enhancing the digital ecosystem in Nepal. Although the concept of angel investors is relatively new in Nepal, measures can be taken to encourage their involvement in the local IT sector. Additionally, there is a need to increase the number of venture companies in Nepal, improving the current availability of venture capital and private equity funds by removing restrictions on foreign sources of funds and introducing convenient exit options, including IPOs. Furthermore, the current collateral loan schemes offered by banks do not provide specific incentives tailored to meet the needs of IT startups.

It is also crucial to ensure that regulatory frameworks and policies are supportive of such collaborations. Clear guidelines, incentives, and protections should be implemented to encourage Nepali tech companies to explore joint ventures and subsidiaries, while also safeguarding their interests and promoting fair and transparent business practices. This approach will not only attract more FDI, but also contribute to the overall development and competitiveness of Nepal's IT industry. Priority should be given to the creation of an efficient and secure payment system for companies.

Human Capital Development

The IT sector is dynamic and rapidly evolving with new advancements in technology, market shifts and consumer demands. Human capital development is fundamental for the IT sector, necessary to ensure employees have the technical skills and competencies to meet industry needs. Furthermore, it will enable them to adapt to new changes in the IT sector and ensure sustainable labour market outcomes. In the 21st century, it is becoming increasingly necessary to perpetually-skill and up-skill the state as well as the citizens of the country.



BOX 2

Hi-tech companies transforming the landscapes

Company TT stands as an exemplary high-tech company operating in Nepal. As a branch office of a US-based startup, they have successfully created employment opportunities for over 300 employees within the country. Their commitment to inclusion and sustainability is highly commendable, and further such focus supports and expands their impact. It is crucial to establish correct networks and initiatives involving government bodies and embassies in different countries to bring such high- tech companies to Nepal. Collaborative efforts between these stakeholders can attract more investment to the country, leading to the creation of additional job opportunities. By promoting Nepal as an attractive destination for businesses, emphasizing its skilled workforce, and highlighting success stories like Company TT, the government and diplomatic channels can assist in achieving these ends and grow domestic industry.

grade 12. Furthermore, a digital framework must be created that ensures inclusive digital education programs and support groups for women, people with disabilities, people from rural areas and minority groups. Collaboration with universities can facilitate the certification and training of IT professionals and can assist in designing courses and programs that better align with the needs of the fast-evolving workforce in the IT industry. IT study must be encouraged by creating pathways within the education system that allow people to explore emerging opportunities in the digital field. Moreover, implementing programs focused on mentorship and entrepreneurship will play a crucial role in strengthening the skills and building the confidence of IT professionals. These initiatives can provide valuable professional development and support to individuals working in the IT sector, particularly aspiring entrepreneurs, and early-career professionals.

The IT sector is seen as a new avenue for employment opportunities and profit earning. Parallelly, global competition and competence in the IT sector is constantly increasing. Given the infrastructural advantages, skilled labor force and high competence of advanced countries, they will set narratives and practices in the global digital economy. Thus, for Nepal to be at equal par with international competitors, Nepali IT leaders will have to up-skill and re-skill themselves constantly. Nepali IT leaders can enhance their competence by adopting international best practices and undertaking vocational programs dedicated to the IT sector. The quality of IT leaders has a ripple effect on the whole IT industry of Nepal, thus, this group will be instrumental in defining the quality and trajectory of Nepal's IT sector.

Mentorship programs can pair experienced industry veterans with emerging talents, allowing for the transfer of knowledge, industry insights, and practical advice. This mentor-mentee relationship fosters personal and professional growth, helping individuals navigate challenges, make informed decisions, and develop their expertise in specific domains. By leveraging the wisdom and experiences of seasoned professionals, mentees can gain valuable insights into various aspects of

Additionally, the provision of early-stage funding for IT startups holds significant potential for fostering growth in Nepal's IT sector. By facilitating access to private capitals such as private equity, venture capital, angel investors, corporate venture capital, growth equity, and crowdfunding, Nepali IT startups can receive valuable support to fuel their development. This form of funding can greatly contribute to enhancing the digital ecosystem in Nepal.

The lack of competent human resources in Nepal's IT sector is a major hindrance to its growth and development. There is a clear gap between the education system and industry knowledge. Policymakers must thus look into initiatives implemented by neighboring countries like India that launched the Pradhan Mantri Kaushal Vikas Yojana 4.0 to emphasize on skill upliftment of the youths, provide training, industry partnership and alignment of courses with industry needs. It also covers new age courses for Industry 4.0 such as coding, AI, robotics, IoT and many more (Ministry of Finance, 2023). Sri Lanka has also recognized the importance of this, declaring 2021-2030 as the Decade of Skills Development to scale up the skills and capacity of their youths (SLASSCOM, 2021).

Digital Skills enhancement will remain crucial in capacity development of individuals. Educational institutions must focus on providing relevant and quality technical skills, vocational training and other professional skills to generate more IT graduates and retain them in the country. Introducing courses on coding, app development, AI and machine learning will be a positive step in bridging the digital gap in Nepal. CTEVT should also work on providing training in IT related courses for people interested in learning IT after

the IT industry, such as business strategies, market trends, and effective leadership practices.

Additionally, entrepreneurship programs can equip IT professionals with the necessary skills and knowledge to start and manage their own ventures. These programs often offer training sessions, workshops, and networking opportunities to help aspiring entrepreneurs understand the intricacies of business planning, marketing, finance, and operations. By nurturing an entrepreneurial mindset and providing practical guidance, these programs empower IT professionals to identify opportunities, develop innovative solutions, and successfully launch their own ventures.

By investing in mentorship and entrepreneurship programs, the government and relevant stakeholders can contribute to the overall growth and success of Nepal's IT industry. These initiatives will not only enhance the capabilities of IT professionals but also foster a culture of innovation, collaboration, and sustainable economic development in the country.

Government should not only focus on skill enhancement and training but also take measures to foster soft skills such as leadership, communication, negotiation and time management skills. A culture of knowledge sharing should be fostered, and incentives should be given to IT industry stakeholders to organize programs, conferences, and seminars that are open to the public.

In addition to the aforementioned strategies, fostering a more inclusive and diverse workforce in the IT industry can be achieved by unlocking the full potential of women professionals through the creation of supportive work environments and promoting visible representation of women in leadership positions. Creating this environment entails implementing policies and practices that address gender biases and provide equal opportunities for career growth. It is essential to ensure fair remuneration, offer flexible work arrangements, and provide resources such as mentorship programs and networking opportunities. By cultivating a culture of inclusivity, companies can empower women professionals

to thrive and contribute their unique perspectives and talents to the industry.

Promoting representation of women in leadership positions is also vital for inspiring and motivating aspiring professionals. By highlighting successful women leaders through various platforms such as industry events, media features, and awards, the IT industry can showcase their achievements and serve as role models for others. This representation will not only break down gender stereotypes, but also demonstrate that women can excel in leadership roles within the sector.

By combining these efforts, Nepal's IT industry can create a more inclusive and diverse workforce, leveraging the full potential of women professionals. This, in turn, will drive innovation, enhance productivity, and contribute to the overall growth and success of the industry.

Policies and Regulations

Government policies and regulations play a central role in supporting and fostering the growth of the IT industry. Proper policy building and implementation of tax laws, labor laws and other IT laws is required for creating a conducive environment for the IT industry.

Introducing tax incentives with carefully defined and time-limited parameters can provide valuable support for the industry's initial growth phase. For instance, IT companies in Pakistan enjoy zero income tax on IT and ITeS exports till June 2025, and tax breaks for the Pakistan Software Export Board (PSEB)-registered IT start-ups for three years (Ministry of IT & Telecommunication, 2023). Further, the Government of Nepal must establish measures to avoid double taxation, especially for IT companies operating in multiple jurisdictions. Under the Digital Moldova 2020 program initiated by the Government of Moldova, residents of their IT parks have to pay a single tax of 7% only on sales revenue and have a simplified reporting regime. This is expected to attract 400 IT companies to carry out IT related activities over the next 10 years (Ministry of Economic Development and Digitalization, 2023). In Nepal, tax credits must be



BOX 3

Driving growth by investing in skills development

Company KK, as one of the leading IT export service companies in Nepal, deserves recognition for its contributions to the country's economy. The company operates in high tax brackets, making significant financial contributions to the nation. Additionally, Company KK has demonstrated its commitment to nurturing young talent by providing training and internship opportunities to young professionals.

These initiatives are commendable as they valuable hands-on experience to aspiring IT professionals, enabling them to develop practical skills and gain industry exposure. By offering such opportunities, Company KK plays a vital role in bridging the gap between theoretical knowledge and real-world application, empowering young people to kick-start their careers in the IT sector. However, to further enhance and scale these initiatives, additional support from concerned stakeholders is essential.

introduced to encourage IT companies to invest in IT infrastructure, software, equipment and related research and innovation.

Besides taxation policies, labor laws that facilitate the well-being of workers in the IT industry are also crucial for creating a supportive work environment. Government laws must recognize the nature of work in the IT industry, which often involves flexible work arrangements such as remote work, freelance contracts, or project-based employment, and provide appropriate protections and benefits for workers engaged in such roles. Revising the salary tax bracket for ICT professionals, easy mobility of workers, both domestically and internationally, through proper immigration policies can also aid in bringing skilled Nepali IT professionals to the forefront of the global IT landscape. Additionally, comprehensive data protection acts and cybersecurity regulations must be implemented to maintain robust cybersecurity measures and protocols to protect against cyber threats and data breaches. Intellectual Property Protection acts must be enacted in order to safeguard IT innovations, software and digital content.

Some of the initiations that are emphasized by Government of Nepal, such as the 2019 Digital Nepal Framework, aim to digitize Nepal's economy and foster socioeconomic growth by focusing on

eight key sectors: Digital Foundation, Agriculture, Health, Education, Energy, Tourism, Finance, and Urban Infrastructure. The framework's initiatives have set a strong foundation to enable the growth of the IT sector (Ministry of Communication and IT, 2018). In addition to this, the recent announcements made in the budget plan for the fiscal year 2023-024 include huge incentives for IT sector companies. These include maintaining the 1% income tax rate for digital service export companies for a few years, extending subsidy to include IT export services, operation of a national cyber security center, allocation of Rs. 7.71 billion for the MOCIT, and the provision of funds worth Rs 1.25 billion allocated for startups.

Creating an Autonomous Government Body

Establishing an autonomous government body dedicated to supporting the IT sector can provide focused attention and resources. This body can serve as a central authority responsible for formulating policies, implementing initiatives, and coordinating efforts to promote the growth and development of the IT industry. Its mandate would include addressing sector-specific challenges, facilitating partnerships, and advocating for the industry's interests.

Establishing a Specialized Audit Department

Introducing a specialized audit department under the Inland Revenue Department that is specifically tailored to the IT sector can streamline tax-related processes and ensure fair and transparent practices. This department can provide expert guidance, conduct audits, and assist IT companies in complying with tax regulations. By understanding the unique characteristics of the industry, this specialized audit department can contribute to a more efficient and supportive business environment.

Recognizing the Importance of Associations

Recognizing and partnering with industry associations like NAS-IT (Nepal Association of Software and Information Services) can be instrumental in fostering the growth of the IT sector. These associations often play a central role in representing the collective interests of IT companies, facilitating collaboration, and advocating for policy reforms. By acknowledging

the importance of such associations and involving them in decision-making processes, the government can leverage their expertise and insights to drive industry growth.

Branding/Promotion of Nepal's IT Industry

In order to attract foreign clients and to create a conducive environment for Nepali IT companies to establish their presence abroad, several initiatives should be taken to promote Nepal's IT sector in the international arena. The government can develop strategies to market Nepal's IT sector as having high potential internationally. For this, the government can provide incentives to IT companies to participate in international events where they can get the opportunity to share about the services they provide and also learn from the innovations of IT companies in other countries. Diplomatic networks can also be used for attracting foreign investment in the IT industry and consequently, making way for future business collaborations. This would require inter-ministerial coordination to focus on the branding of Nepal's IT sector.



BOX 4

Harnessing highly professional services with huge employment opportunities for younger generation

UU operates as a cloud-based on-demand workforce platform, prioritizing the delivery of high-quality services in real time. They offer flexible work schedules, accommodating both part-time and online work arrangements. To further support the growth and success of the industry, Company UU suggests addressing certain challenges related to labor laws for outsourced workers and tax laws concerning tax rebates. By resolving these issues, both companies and workers can fully accrue the benefits associated with their services, fostering a favorable business environment and promoting the development of Nepal's IT industry.

In the context of labor laws for outsourced workers, there is a need to establish clear guidelines and regulations that protect the rights and interests of these workers. This includes ensuring fair compensation, providing appropriate working conditions, and safeguarding their employment rights. By addressing these concerns, companies like UU can operate in a transparent and responsible manner, fostering a positive work environment for their on-demand workforce.

Through the use of effective slogans and branding strategies, Nepal's IT sector should be recognized as an emerging sector with high potential. For instance, prior to the COVID pandemic in 2020, Nepal's tourism sector had been successfully attracting tourists through the 'Visit Nepal 2020' slogan.

An example for this is Bangladesh where the country has been using the 'Digital Bangladesh' slogan and has embarked on a mission to make the ICT industry as the next engine of growth for the economy within 2041. The government has also recognized December 12 as Digital Bangladesh Day. In fact, the four pillars of Digital Bangladesh— Human Resource Development, Connecting Citizens, Digital Government, and the Promotion of ICT Industry have been playing a huge role in boosting the industry's growth. Today, more than 120 companies in Bangladesh are exporting ICT products worth about USD 1 billion to 35 countries. Under this mission, Bangladesh has been looking to increase this number to USD 5 billion by 2025 (CUTS International, 2022).

Encouraging the demand for IT products and services can also help to promote Nepal's IT sector both nationally and internationally. Toward this end, the government can play an active role in promoting digital transformation across sectors. Private companies in other industries can be incentivized to utilize the services provided by local IT companies. Similarly, the government can support the development of digital infrastructure by prioritizing e-governance across its ministries and organizations. Such an increase in demand can foster the growth of start-ups and IT companies in the next phase of expansion.

The Government of Nepal can play an important role in branding the IT market of Nepal as a whole. But the onus of self-branding of the IT company falls on the IT company itself. It is imperative that Nepali IT companies strengthen their sales and marketing strategies to compete with international competitors and showcase Nepal as an IT hub. Nepali IT companies cannot be completely reliant on the GoN for branding, but will have to bring about innovative and novel ideas in branding and

promotion to carve out their unique identity in the global IT market.

 **Through the use of effective slogans and branding strategies, Nepal's IT sector should be recognized as an emerging sector with high potential.**

BOX 5

Global excellence in services

Company LL stands as a prominent example of a Nepali IT company that has been successfully assisting both local and international enterprises. Their contributions to the business ecosystem in Nepal are noteworthy, as they not only provide valuable services but also work towards reducing the country's reliance on foreign firms.

Company LL exemplifies the positive impact that Nepali IT companies can have on both the local and international fronts, pave the way for a self-sustaining and prosperous IT industry in the country.

Coordination and Collaboration

In the context of the IT industry, coordination and collaboration among different stakeholders is necessary for driving rapid digital transformation. Private-public partnerships, university-industry and international collaboration are capable of leveraging the expertise and resources across different sectors and assisting in fostering innovation and growth of the IT industry. Public-private partnership can cover a wide range of areas including expanding broadband, upscaling digital skill training, and strengthening cybersecurity initiatives, among others. Government can provide

subsidies and other incentives to private internet service providers (ISPs) to invest in infrastructure development and expand broadband access in underserved areas.

Government should also collaborate with private cybersecurity firms to enhance cybersecurity strategies, share threat intelligence, and develop joint initiatives to combat cyber threats and protect digital and data infrastructure. Public-private partnerships can be established to develop training programs and initiatives aimed at bridging the digital skills gap. In Vietnam, the Ministry of Education and Training, and the Ministry of Labor have partnered with Microsoft to increase digital skills training, create a new ICT curriculum and promote digital inclusion for rural students and ethnic minorities (Cameron et al., 2019). GoN should similarly work with IT companies to provide technical training, promote digital literacy, and equip individuals with the necessary skills for the digital economy.



BOX 6

Start up voyage while expanding the horizon

Company BB serves as an outstanding example for other startups based in Nepal. Their success story demonstrates that Nepali IT businesses have immense potential to thrive and succeed on a global scale. However, to unlock this potential, it is crucial to provide better government support, adequate resources, and strategic decision-making.

By offering enhanced government support, such as favorable policies, streamlined regulatory processes, and financial incentives, national companies like BB can receive the necessary backing to expand and grow. This growth trajectory will not only contribute to the success of individual businesses but also elevate the overall reputation and competitiveness of the Nepali IT industry on the global landscape.

Nepali IT companies are currently facing challenges in terms of their capacity to effectively compete with international players in the global market. As a strategic approach to enhance their value proposition and strengthen their negotiating power with multinational corporations (MNCs), it has been observed that Nepali companies often consider exploring mergers and collaborations with one another prior to engaging with international counterparts.

Collaboration with universities can help facilitate the certification and training of IT professionals and can assist in designing courses and programs that better align with the needs of the fast-evolving workforce in the IT industry. Furthermore, it promotes research, knowledge sharing and development of practical knowledge. Joint research projects and internships can help bridge the gap between academia and industry. Government

can play a crucial role as a facilitator, creating an enabling environment for collaboration and partnership among various stakeholders. Tri-sector collaboration between the government, university and industry should aim to promote lifelong adult learning via accessible online courses and toolkits. For instance, the Open University of Sri Lanka has signed an agreement with Coursera, an online learning platform that aims to build job-relevant, in-demand skills in its learners by giving access to courses from top universities and institutions from around the world (SLASSCOM, 2022).

Furthermore, organizing international conferences, workshops, and networking events in collaboration with international IT companies from major IT hubs like Beijing and Bengaluru will help in producing industry-ready IT professionals. In Vietnam, industry training from international firms has been increasing to keep supplying coding and

ICT services businesses for export (Cameron et al., 2019). Similarly, the Government of Nepal should work to foster collaborations with universities, private entities, and international bodies so that the IT industry can adapt, evolve and thrive in this digital age.

Innovation

Innovation is critical to the growth and expansion of the IT industry. However, advancements in technological development should not just be limited to IT companies and freelancers. The Nepali IT industry could benefit to a huge extent if educational institutions start investing in research and development and students are encouraged to engage in creative projects from a young age.

To enhance the creative abilities of students, primary and secondary schools in Nepal should allocate funds toward technical education courses and skills development programs. The government and other non-governmental organizations can also introduce initiatives targeted toward skills enhancement in young children. An excellent

example for this is Sri Lanka where SLASSCOM, the national chamber for the IT/BPM industry, has introduced Tech Kids in collaboration with the Royal Norwegian Embassy. Tech Kids is an IT education initiative that aims at developing coding and robotics skills in young people of ages 6-16 (SLASSCOM, 2021). Similar to this, students in India are to be taught coding in schools as part of the 21st-century skills plan (The Quint World, 2020).

In addition to skills enhancement programs, schools should also prioritize investing in digital and media literacy. To this end, non-profit and other research organizations can play an important role in advising the government and educational institutions. For instance, the Media Literacy Now (MLN), a politically neutral non-profit in the United States has been successful in helping to pass more than 20 pieces of legislation regarding media literacy in 10 states. MLN serves as an example of successful collaboration between nonprofits and local governments in boosting digital literacy (Media Literacy Now, 2023). In Nepal, the local government should play a proactive



BOX 7

Mastering Collaboration and Partnership

CC has strategically formed alliances with both the government and private sector to effectively cater to the diverse needs of its clients. This collaboration has proven highly successful, enabling the company to generate substantial revenue not only from the international market but also within the country itself, all within a relatively short period of time. By leveraging its international market knowledge, Company CC has been able to adapt and transform its services to meet the specific demands of the domestic market. Furthermore, the company has expanded its services to other countries, showcasing its ability to scale and establish a strong presence in global markets. This case demonstrates the significant benefits that arise from collaboration between the right partners. Startups, in particular, can experience accelerated growth and development when they form strategic alliances with organizations that complement their strengths and contribute to their value proposition. By collaborating with the right partners, startups gain access to resources, expertise, and networks that can propel their success. This synergy enables them to tap into new markets, adapt to changing customer needs, and drive innovation.

The success of Company CC highlights the immense value of collaboration in the IT industry. By forging partnerships with government entities, private sector organizations, and international markets, companies can achieve remarkable growth and establish a strong foothold in both local and global arenas.

role in integrating digital literacy as part of the primary and secondary school curriculums. As per the constitution of Nepal, basic and secondary education falls under the jurisdiction of the local government. Therefore, the local governments of all seven states should take timely and decisive steps in transforming the education system.

Nepal is currently emphasizing the promotion of startups and innovation, as reflected in the recent budget 2023/24 addressing these areas. However, the successful implementation of these initiatives remains uncertain. Therefore, in order to ensure effective implementation, Nepal can draw valuable lessons from various global contexts that have demonstrated successful innovation strategies and practices. The following examples serve as valuable sources of inspiration and guidance for Nepal's efforts in fostering a thriving startup and innovation ecosystem:

Ghana Hubs Network is an umbrella association encompassing over 50 tech, business, and innovation hubs in Ghana. It aims to foster a robust business and tech ecosystem by facilitating partnerships, collaboration, and influencing policy actions. These innovation hubs offer digital tools, training, networking, and incubation services, serving as pivotal centers for connecting innovators across the country.

 **Collaboration with universities can facilitate the certification and training of IT professionals and can assist in designing courses and programs that better align with the needs of the fast-evolving workforce in the IT industry. IT study must be encouraged by creating pathways within the education system.**

BOX 5

Global excellence in services

MM has taken a commendable initiative by focusing on the development of skilled human resources and driving innovation in the IT sector, particularly in areas such as AI. To bridge the existing gaps in talent, the company has actively engaged in partnerships, including signing an MOU with a reputed university in Nepal. Through this collaboration, Company MM is actively participating in curriculum development, ensuring that the educational programs align with the evolving needs of the industry. By taking a proactive approach to talent development, the company is not only addressing the existing talent gaps but also contributing to the overall growth, promoting innovation and sustainability of the IT sector in the country.

Rather than simply complaining about the weaknesses in the talent pool, Company MM is taking tangible steps to foster the development of skilled professionals. By actively participating in curriculum development, the company is shaping the skills and knowledge of future IT professionals, ensuring they are equipped with the necessary expertise to meet the industry's demands.

The **Techo Startup Center (TSC)**, developed by the Ministry of Economy and Finance (MEF) in Cambodia, supports tech startups through acceleration programs, incubation, policy research, mentorship, and investor connections, particularly in sectors like agriculture, finance, and SME digitalization. TSC plays a vital role in advancing Cambodia's startup landscape and fostering growth opportunities.

The **Wennovation Hub** in Nigeria, founded in 2010, serves as a venture development company offering acceleration, incubation, investment opportunities, and mentorship to early-stage startups in emerging sectors. Through its initiatives, it has significantly contributed to job creation, youth training, and supporting female-led businesses, while also raising substantial seed capital.

Kigali Innovation City (KIC), developed in Rwanda with the support of the government aims to establish a technology innovation hub featuring incubators, universities, office spaces, and other supporting facilities. The project, sponsored by the Rwanda Development Board and Africa50 (a platform developed by African governments and African development bank) is projected to generate significant economic benefits, including ICT exports, foreign direct investments, job creation, and a steady stream of skilled graduates

In Laos, the **SMART UP e-learning platform**, launched by the Department of Small and Medium Enterprises Promotion in partnership with USAID, equips entrepreneurs and SMEs with digital skills through online modules covering accounting, digital marketing, data analysis, and more. This platform is expected to enhance job prospects and create opportunities in response to the digital development challenges faced by the citizens of Laos.



BOX 9

Creating opportunity for creativity and innovation

RR has successfully established avenues for young and creative Nepali talents to contribute and showcase their skills in the global market. One remarkable aspect is that even individuals with just a high school education can join their vibrant team of artists and engineers, providing them with opportunities for growth and career advancement. By promoting Nepal as a film-making destination, Company RR is actively contributing to the expansion of job opportunities within the country. This initiative not only attracts foreign investment but also nurtures the local talent pool, encouraging them to explore their potential in the field of filmmaking. The government should recognize and support IT companies like RR that are working diligently to provide unique products and services to the global market. By acknowledging their efforts and providing the necessary resources and incentives, the government can encourage the growth of more companies in the IT sector.

SECTION SIX

Conclusion

Conclusion

The promotion of borderless and weightless goods and services holds immense promise for Nepal. By actively participating in the global digital ecosystem and integrating into the global value chain, Nepal can gradually transform its economy and reap the benefits of a digital-driven world. The export of IT services from Nepal has been a longstanding practice, with both companies and freelancers making valuable contributions.

In addition to its contribution to GDP and foreign exchange earnings, the ICT sector offers substantial potential for generating large-scale employment opportunities. However, further development of the sector is essential to fully harness its potential and act as a catalyst for overall growth. This can be achieved by building synergies among stakeholders and creating an enabling environment for the ICT sector's development in Nepal.

To promote the growth and development of the ICT sector in Nepal, policy advocacy, research, and development must play a role in supporting integral development. By actively engaging in these activities, emerging trends can be identified, challenges can be addressed, and opportunities in the digital economy can be seized. Similarly, harnessing the potential of the digital economy requires a focus on strengthening innovation and entrepreneurship. This can be achieved by supporting startups, providing access to resources and funding, and fostering a culture of innovation throughout the country.

Moreover, investing in education, skills development, and capacity building is vital for the growth of the ICT sector. By emphasizing the importance of digital skills and knowledge, individuals can be equipped with the necessary tools to thrive in the industry. Furthermore, public-private partnerships are essential for infrastructure development in the ICT sector. By collaborating with private sector entities, the government can address the infrastructure needs of the sector, including broadband connectivity and data centers.

Digital inclusion and ensuring digital rights should also be prioritized. Bridging the digital divide, promoting affordable internet access, and protecting digital rights are key aspects of creating an inclusive digital society. Likewise, building synergies and coordinating efforts among stakeholders is crucial for creating a vibrant ecosystem. Collaboration between government agencies, industry associations, research institutions, and civil society organizations will also be necessary to foster an environment that supports the growth of the ICT sector.

Additionally, establishing strong networks and fostering collaboration is essential for the sector's development. By facilitating knowledge sharing, resource pooling, and coordination among various stakeholders, the ecosystem can be nurtured and propelled forward.

Finally, creating an enabling environment is of paramount importance. This involves implementing favorable policies, efficient regulatory frameworks, and providing access to funding and support for market development. Nurturing a culture of innovation, entrepreneurship, and continuous learning is also critical to support the growth of the ICT sector in Nepal.

With these steps, Nepal can create a conducive environment for the ICT sector's growth and play a significant role in the global digital landscape. It requires collaboration and concerted efforts from government bodies, industry players, educational institutions, and civil society organizations to drive the sector's development and leverage its potential for economic growth and employment generation.

 **Building synergies and coordinating efforts among stakeholders is crucial for creating a vibrant ecosystem.**

References

- Agal, S., Kumar, V., & Paudel, S. (2021). Information Technology Outsourcing in Nepal: Strengths, Challenges, and Priorities. *Nepal Journal of Multidisciplinary Research*, 4(4), 1-22. <https://www.nepjol.info/index.php/njmr/article/view/43023>
- Almeida, F., Santos, J. D., & Monteiro, J. A. (2020). The challenges and opportunities in the digitalization of companies in a post-COVID-19 World. *IEEE Engineering Management Review*, 48(3), 97-103. https://www.researchgate.net/publication/343338422_The_Challenges_and_Opportunities_in_the_Digitalization_of_Companies_in_a_Post_COVID-19_World
- Aryal, M. (2022). Emphasis on improving the 'digital Nepal framework'. *ICT Frame*. <https://ictframe.com/>
- Cameron, A., Pham, T. H., Atherton, J., Nguyen, D. H., Nguyen, T. P., Tran, S. T., ... & Hajkowicz, S. (2019). Vietnam's future digital economy—Towards 2030 and 2045. Brisbane: Commonwealth Scientific and Industrial Research Organisation. https://research.csiro.au/aus4innovation/wp-content/uploads/sites/294/2020/07/18-00566_DATA61_REPORT_VietnamsFutureDigitalEconomy2040_ENGLISH_WEB_190528.pdf
- Corner, S. (2022, April 27). South Asia data centre guide 2022: Country by country. *Network World*. <https://www.networkworld.com/article/3658136/south-asia-data-centre-guide-2022-country-by-country.html#:~:text=risk%20reduction%20program.-,Data%20centres%20in%20Bangladesh,which%20has%20two%20in%20Dhaka>
- Dixit, A. (2023, Feb 23). A digital skills action plan for Nepal. *The Annapurna Express*. <https://theannapurnaexpress.com/news/a-digital-skills-action-plan-for-nepal-38711>
- Giri, S. (2018). Dimensions of digital Nepal framework and appropriate roadmap. *International Journal of Science and Research*, 9, 724-10. <https://www.ijsr.net/archive/v9i1/31121901.pdf>
- India Brand Equity Foundation. (2023, June 7). India's internet economy is expected to hit USD 1 trillion by 2030, says report <https://www.ibef.org/news/india-s-internet-economy-is-expected-to-hit-usd-1-trillion-by-2030-says-report#:~:text=The%20share%20of%20the%20Internet,4%2D5%25%20in%202022.>
- India on track to be a trillion-dollar digital economy. (2023). NASSCOM. https://nasscom.in/sites/default/files/facts_and_figures/india-on-track-to%20be-a-trillion-dollar-digital-economy.png
- Malaysian Communications and Multimedia Commission. (2009). HSBB Malaysia's drive for High Speed Broadband. https://www.skmm.gov.my/skmmgovmy/media/General/pdf/MYC04_all_lowres.pdf
- Media Literacy Now. (2023). Putting media literacy on the public policy agenda. <https://medialiteracynow.org/impact/current-policy/>
- Ministry of Communication and IT. (2018). 2019 Digital Nepal framework. https://nepalindata.com/media/resources/items/15/bEN_Digital_Nepal_Framework_V7.2March2019.pdf
- Ministry of Economic Development and Digitalization. (2023). Digital Moldova 2020. <https://old.mded.gov.md/en/content/digital-moldova-2020>
- Ministry of Finance. (2021). Economic survey 2020/21. [https://www.mof.gov.np/uploads/document/file/1633341980_Economic%20Survey%20\(Engslish\)%202020-21.pdf](https://www.mof.gov.np/uploads/document/file/1633341980_Economic%20Survey%20(Engslish)%202020-21.pdf)

Ministry of Finance. (2023). National education policy formulated to empower youth and help 'Amrit Peedhi' Realize Their Dreams. <https://pib.gov.in/PressReleasePage.aspx?PRID=1895304>

Ministry of Information Technology & Telecommunication. (2022). <https://moitt.gov.pk/NewsDetail/ZGNkZjhYjAtMmMyZi00NDRiLWFhOTItYjhiMjlzZDZIOGFm>

Mishra, K., & Aithal, P. S. (2021). Foreign aid contribution for the development of Nepal. International Journal of Management, Technology, and Social Sciences, 6(1), 162-169. https://www.researchgate.net/publication/351276383_Foreign_Aid_Contribution_for_the_Development_of_Nepal

New education policy: Students to learn coding from class 6. (2020, July 30). The Quint World. <https://www.thequint.com/news/india/new-education-policy-students-to-learn-coding-from-class-6th-onwards>

Sharma, A. (2023). Employability in ICT sector in Nepal: An explanatory sequential mixed methods study [unpublished doctoral dissertation]. Kathmandu University, Dhulikhel, Nepal.

Sharma, G. (2020). Digital governance in Nepal. Journal of Management Research, 12(3), 41-57. https://www.researchgate.net/publication/342358874_Digital_Governance_in_Nepal

Sharma, S., Raj, M., & Gandhi, T. (2020). Challenges and issues faced by startup companies in India. In Sixteenth AIMS International Conference on Management ISBN (pp. 978-991). <http://www.aims-international.org/aims16/16ACD/PDF/A-171-Final.pdf>

SLASSCOM. (2021). Sri Lanka IT-BPM industry: State of the industry 2019/20. <https://lasscom.lk/wp-content/uploads/2021/06/State-of-the-industry-report.pdf>

The World Bank. (2013). ICTs are creating new jobs and making labor markets more innovative, inclusive, and global – World Bank study. <https://www.worldbank.org/en/news/press-release/2013/09/10/icts-are-creating-new-jobs-and-making-labor-markets-more-innovative-inclusive-and-global-world-bank-study>

The World Bank. (2022). Digital development. <https://www.worldbank.org/en/topic/digitaldevelopment/overview>



Institute for Integrated
Development Studies • 1979

