RDB | RWANDA DEVELOPMENT BOARD

RWANDA

ANNUAL STATE OF SKILLS SUPPLY AND DEMAND 2022

mastercard foundation

SKILLS RWANDA

ACKNOWLEDGEMENTS

The Report required the effort of a multidisciplinary team. Our heartfelt appreciation goes out to Rwanda Development Board (RDB), Chief Skills Office staff and its stakeholders for making this Report possible, namely:

- Mastercard Foundation
- Chief Skills Officer, Elodie Rusera, Heads of Departments, Francois Ngoboka and Viateur Nzabanita, and Julian Asiimwe of the RDB.
- Head of Departments, Abimana Fidele and Mwambari Faustin, Ministry of Public Service and Labour (MIFOTRA).
- Esperance Mukarutwaza, Research Specialist, Heads of Departments, Theodore Dusabimana and Dr Theoneste Ndikumana, Higher Education Council (HEC).
- Permanent Secretary, Charles Karakye, Ministry of Education (MINEDUC).
- Director General, Paul Umukunzi, Head of Departments, Aimable Rwamasirabo and Solange Uwamahoro, Rehema Mukankubito, Education Programme Manager, Rwanda TVET Board (RTB).
- Deputy Director General, Ivan Murenzi, National Institute of Statistics Rwanda (NISR).
- Faustin Karasira, Chief Operating Officer, Private Sector Federation (PSF).
- Talent Acquisition Associate, Samuel Mugisha, NFT Consult.
- Managing Director, Denise Umunyana and Employer Relations Associate, Barbara Gasamagera, Right Seat.
- Manager, Sege Priam Nsanzineza, Bridge Career Services.
- Talent Acquisition Associate, Diane Umwai, Q–Sourcing Servtec Group.
- Country Manager, Dorcus Rutunda, ITM.
- CEI Lead Researcher, Prof Hoosen Rasool, with the support Francois Ngoboka, Viateur Nzabanita, Abdou Musonera, Gilbert Agaba, Patrick Rugwizangoga, Emmanual Uwizeyimana, Norbert Karemera and Edward Kadozi.

HIGHLIGHTS

1 Introduction

Objectives

IDENTIFY
Identify occupations in demand and skills gaps.

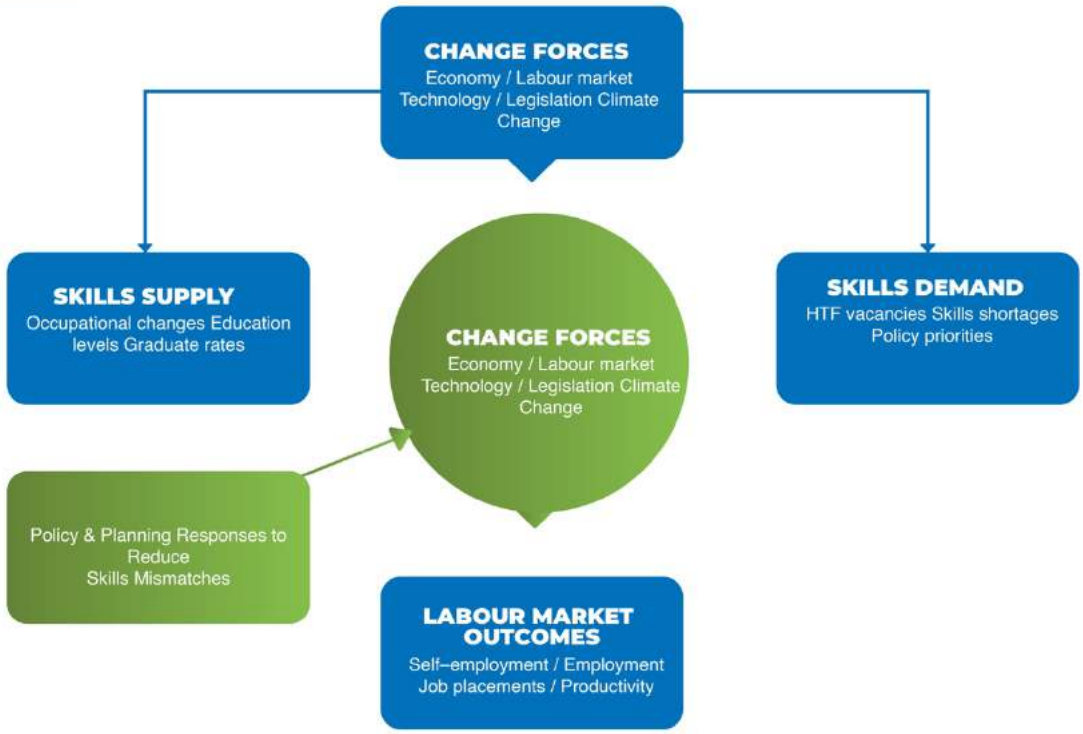
ASSESS
the current qualification mix.

ASSIST
youth to make wise career choices.

DETERMINE
skills imbalances in the labour market.

INFORM
supply–side planning and provisioning.

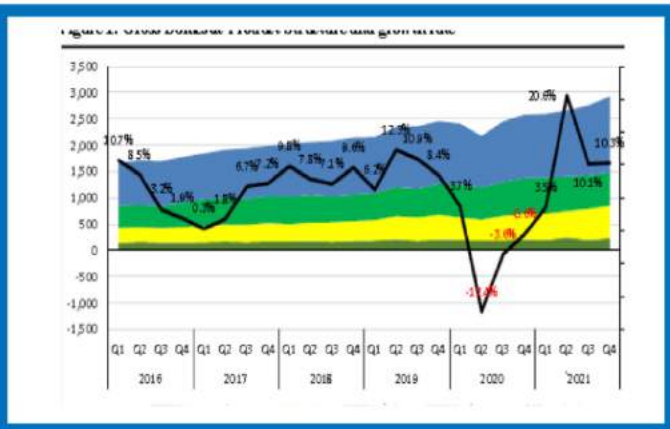
Theoretical Framework for the research



2 Economy

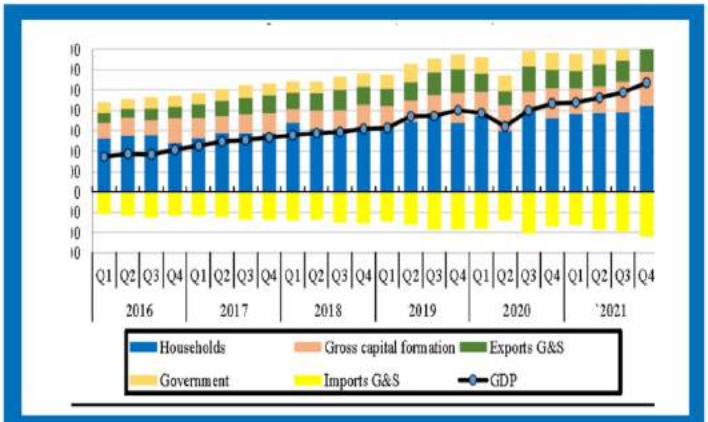
- Emphasis should be on improving health, education, early childhood development, entrepreneurship and narrowing the digital gap.
- Economic diversification is a necessity.
- The pace of structural transformation should be accelerated.

GDP Growth



Impressive GDP growth averaged 7.3% from 2015 to 2019, but COVID–19 led to a recession in 2020.

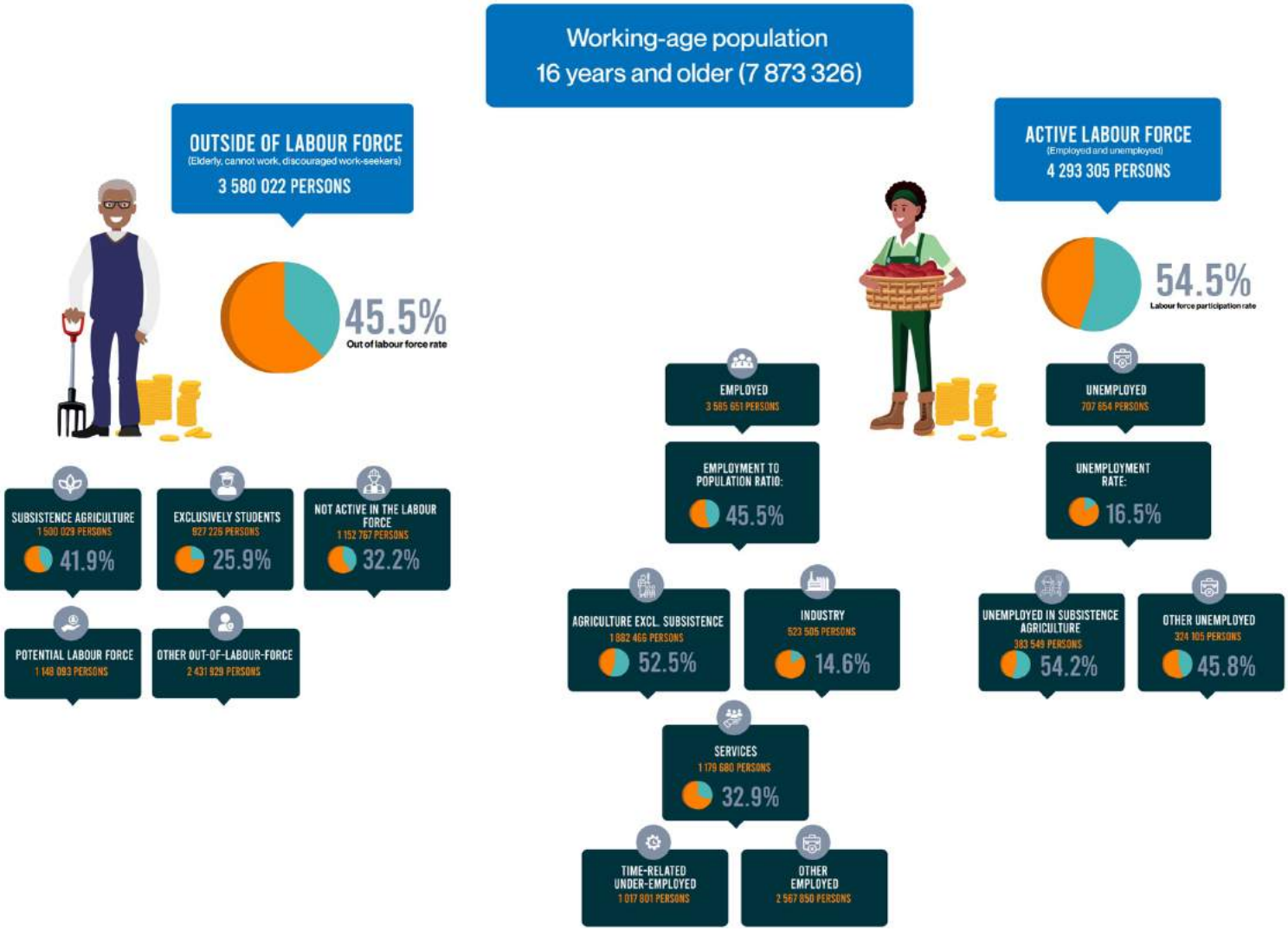
Expenditure on GDP



The economy is dominated by services (consumption), but the productive sector (industry) needs to grow. Growth was largely attributed to physical capital accumulation, while human capital lagged.

3 Labour Market

- Rwanda should prioritise improving the working conditions of agricultural workers.
- Other challenges are a lack of wage employment, a small manufacturing base and low workforce education levels.



4 Skills Supply

- Rwanda's two–tier education and training structure is a positive development.
- Insufficient evidence of workplace training.
- The TVET–General Education ratio in secondary and higher
- education is a concern.
- The challenge is to improve the quality of these programmes.

TVET and General Education Student Ratio

TVET L1-L5 — 1

Upper General Secondary — 3

For every **one** TVET student there are **three** Upper General Secondary students

Polytechnic — 1

General Higher Education (University) — 7

For every **one** polytechnic student there are **seven** General Higher Education (University) students

- Rwanda's economic structure requires higher student enrolments in TVET L1–L5 and polytechnics than the current level to provide graduates with occupational competencies and improve college–to–work transition rates.

- Increasing TVET enrolments will require additional human and material resources to expand and upgrade institutions.

Indicator/Year	Primary	Lower Secondary	Upper Secondary
Promotion rate	79.6%	80.1%	87.2%
Repetition Rate	10.9%	8,9%	5.0%
Dropout Rate	9.5%	11,0%	7.8%

From	2019/20
Primary to lower secondary	66%
lower to upper secondary	77,4%
S3 exam to TVET L3	30,5%
S6 to HE (T/T–1)	63.0%

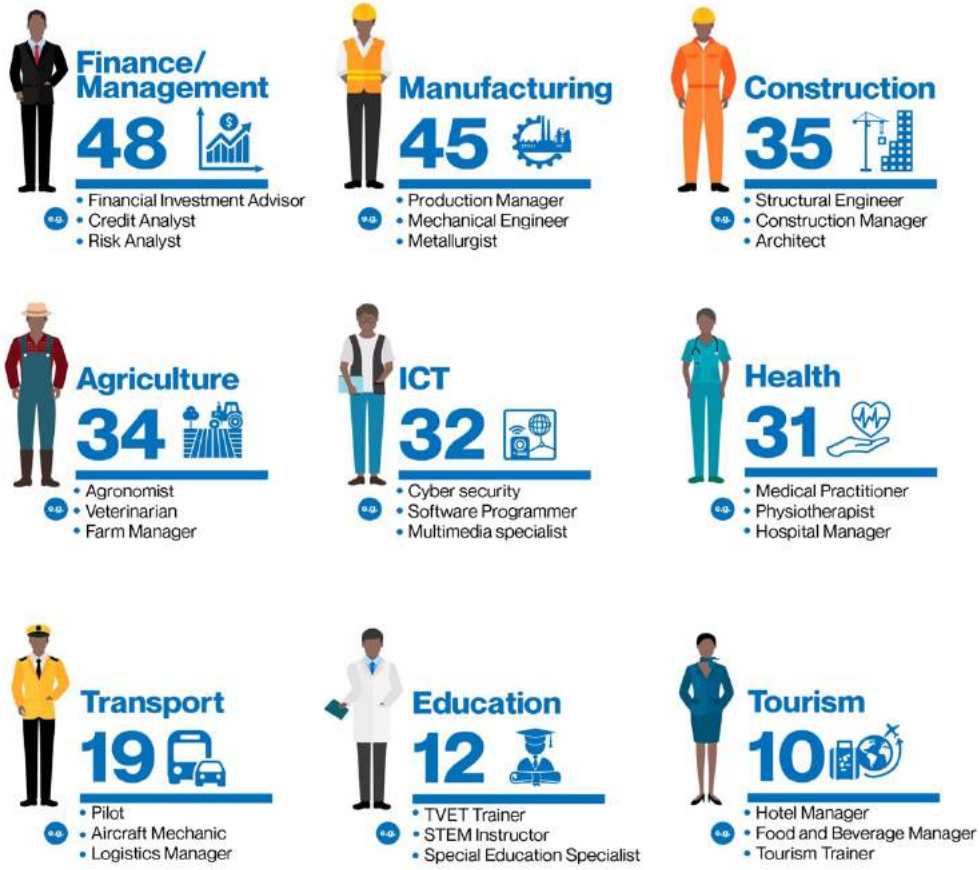
- Transitions in all phases are a concern.

- The promotion rate in primary and secondary schools is low, while high repetition and dropout rates exist.

5 Skills Demand

- Identified 268 occupations in demand. From this, 228 occupations (85,1%) in high skills category, 33 occupations (13,8%) in middle–skills, and 03 occupations (1.1%) in low–skills category.
- The highest concentration of occupations in demand are found in finance & management (48), manufacturing and engineering (45), construction (35), agriculture tradableades are needed.
- Employment in the services sector is growing, but it is non–tradable low–value services.
- The economy is predominantly informal and lacking in quality jobs.
- Tourism is a key sector with job creation potential.
- Digital technologies have significant potential, as internet use in Africa increased from 2.1% in 2005 to 24.4% in 2018.
- E–commerce, software development, financial services, or business process outsourcing offer employment opportunities.

Some Key Occupations in Demand by Sector



6 Future Skills

- Future occupations were identified in transport, agriculture, forestry and fisheries, tourism, ICT, environment & urbanisation, and manufacturing.
- Skills gaps were identified for business, technology and data science.

Some Future Skills

Transport	Agriculture	Tourism	ICT	Environment Urbanisation
DRONE PILOT	AGRONOMIST	ECO TOURISM GUIDE	DATA SCIENTIST	SOLAR /WIND TECHNICIAN
LOGISTICS ANALYST	VETERINARIAN	DIGITAL MARKETER	CLOUD ENGINEER	ENERGY ANALYST
SOFTWARE PROGRAMMER	AGRI SCIENTIST	GUEST EXPERIENCE DESIGNER	CYBER SECURITY SPECIALIST	GEOSCIENTIST

Health	Occupational Therapy and Physical Therapist / Mental Health Counsellor/ Dental Hygienist/ Sonographer/Medical Technologist or Laboratory Technician/ Medical Records and Health Information Technicians
Mining	Mining Engineer / Heavy duty equipment mechanics/ Process automation specialists/ Geologists and geo-physicists/ Cartographers and Surveyors/ Power engineers and power systems operators/ Geological and mineral technologists and technicians/ Geochemist
Financial Services	Financial Manager/ Digital Marketing and Strategy Specialists/ Business Development Professionals/ Business Services and Administration Managers/ Risk Management Specialists/ Financial Analyst/ Actuary

7 Findings & Recommendations

Findings

- The Rwandan labour market has structural imbalances between skills demand and supply.
- There are quality and field–of–study mismatches between employer expectations and graduate supply.
- Rwanda has a growing youth unemployment problem that should be urgently addressed.
- Attract high–skilled foreigners with residency and naturalisation to address skills shortages.

Recommendations

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LIST OF EXHIBITS

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ASM	Artisanal and small–scale mining
AUTOCAD	Automatic Computer–Aided Design
BTech	Bachelor of Technology
CEOs	Chief Executive Officer
COMESA	Common Market for Eastern and Southern Africa
COVID–19	Coronavirus Disease of 2019
CPD	Continuing Professional Development
CPIA	Country Policy and Institutional Assessment
CSO	Chief Skills Office
EAC	East African Community
EPR	Extended Producer Responsibility
FDI	Foreign Direct Investment
GCF	Gross Capital Formation
GDP	Gross Domestic Product
GIT	Global Information Tracker
GOR	Government of Rwanda
HE	Higher Education
HIV	Human Immunodeficiency Virus
HTFVs	Hard–to–fill Vacancies
ICT	Information and Communications Technology
IMF	International Monetary Fund
IT	Information Technology
LFPR	Labour Force Participation Rate

LINUX	Linus Torvald's UNIX
LMIS	Labour Market Information System
MEFORTRA	Ministry of Public Service and Labour
MFIs	Microfinance Institutions
MINEDUC	Ministerio de Educación de Chile
MININFRA	Ministry of Infrastructure
MTech	Master of Technology
NEET	Not in Employment, Education or Training
NGO	Non–Governmental Organisation
NISR	National Institute of Statistics of Rwanda
NSDEPS	National Skills Development and Employment Promotion Strategy
NSPEPS	National Special Programme for Food Security
NTS1	National Transformation Strategy 1
ODL	Occupations in Demand List
OECD	Organisation for Economic Co–operation and Development
OEMs	Own Equipment Manufacturers
PhD	Doctor of Philosophy
PIRLS	Progress in International Reading Literacy Study
PSDYES	Private Sector Development and Youth Employment Strategy
RDB	Rwanda Development Board
RPL	Recognition of Prior Learning
RRT	Rapid Response Training
RTB	Rwanda TVET Board
SBTC	Skills–Biased Technological Change
SEEP III	Skills, Employability and Entrepreneurship Programme III
SME	Small and Medium Enterprises
SPSD	Support for Policy and Strategy Development
SQL	Structured Query Language

SRH	Sexual and Reproductive Health and Research
SSA	Sub Saharan Africa
SSCs	Sector Skills Councils
STEM	Science, Technology, Engineering, and Mathematics
TFP	Total Factor Productivity
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical and Vocational Education and Training
TVET L1–5	Technical and Vocational Education and Training Level 1–5
UK	United Kingdom
UR	Unemployment rate
USA	United States of America
VTCs	Vocational Training Centres
WFP	World Food Programme
Y–Y	Year–on–Year

SECTION ONE: BACKGROUND AND CONTEXT

1.1 ABOUT RWANDA

Rwanda has made remarkable socio–economic progress in two decades and is an African success story. Life expectancy improved to 67.8 years in 2020 from 65 years in 2014, per capita income almost tripled, and growth averaged 7.2% between 2010–2019. Headcount poverty reduced from 44.9% in 2011/12 to 38.2% in 2016/17.[1] The country ranks second in Africa behind Mauritius on the *World Bank Ease of Doing Business* index. It ranked first in the continent on the *Country Policy and Institutional Assessment (CPIA)* by the African Development Bank and the World Bank in 2018. Rwanda ranks at the top in closing the gender gap in sub–Saharan Africa, with a 79.6% score in 2020. In terms of the Human Capital Index[2], Rwanda is making progress. A child born in Rwanda today will be 38% as productive when she grows up as she could be if she enjoyed complete education and full health.[3]

The private sector has registered substantial growth over the last six years. Private investments to GDP doubled from 5.8% in 2006 to 11.6% in 2020.[4] Small and medium–sized enterprises (SMEs) still dominate Rwanda's private sector.

Representing over 90% of all businesses and accounting for about 41% of employment. Most firms are nascent, informal, and concentrated in the non–tradable sectors.

Rwanda is a low–income country with US$831 GNI per capita in 2019. Rwanda's GDP is higher than more than 20 countries in Sub–Saharan Africa (SSA). It has also

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[1] African Development Bank (2021) African Development Bank (2021) Republic of Rwanda Country Strategy Paper 2022–2026. October.

[2] The HCI measures the amount of human capital that a child born today can expect to attain by age 18. It conveys the productivity of the next generation of workers compared to a benchmark of complete education and full health. Worldwide a child born in 2020 can expect, on average, to be 56 percent as productive as she could be when she grows up. represent the status of countries pre–COVID–19.

[3] https://data.worldbank.org/indicator/HD.HCI.OVRL?locations=RW

[4] Republic of Rwanda (2021) Country strategy paper 2022–2026. October. African Development Bank.

radically improved its investment climate, climbing to 38th in the 2020 Doing Business global rankings.

Rwanda faces socio–economic and developmental challenges common to other developing countries. Rwanda still faces low formal wage employment, a small domestic market, a developing human capital base, and nascent financial markets. However, the country embarked on structural transformation in the last 20 years and the economic structure needs diversification. The country was ranked 1st in EAC and 5th in Africa for IT readiness infrastructure with 95% 4G LTE network coverage and 7 000km fibre domestically. Three international fibre optic routes provide reliable connectivity to Seacom.[5]

Poverty is still a major problem. Thirty–eight per cent of Rwandans live below the poverty line, and 16% are under extreme poverty in absolute terms. Poverty is concentrated in rural areas and among households with many children.

Notwithstanding, the pace of poverty reduction is significant. Between 2010 and 2017, the rate of people living below the poverty line decreased from 49% to 38%, and those under extreme poverty from 24% to 16% in the same period. Reducing poverty by 10% in six years is a record in the elasticity of poverty reduction to economic growth.[6]

Rwanda is a member of the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA), among others. It ratified most regional economic integration and cooperation protocols and agreements. Regional integration offers Rwanda a larger market, trade facilitation, knowledge, skills and technology transfers.

The Covid–19 crisis adversely impacted economic and labour market performance. It reduced domestic revenue generation and increased public debt. The pandemic led to job and learning losses due to school closures. The economy is on the rebound, and employment is expected to grow. As part of the Economic Recovery Plan, various initiatives were created, including the Economic Recovery Fund, to help firms to restructure their loans or access short–term financing. A special focus has been given to hard–hit sectors such as tourism, hospitality, and education.

[5] WB (2019) World Bank Doing Business Report

[6] http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-5-eicv-5

The government pursues reforms through the *National Strategy for Transformation (NST–1) 2017–2024*. Its objectives are decent jobs, improved productivity, economic development, poverty reduction, industrial development, export promotion, and expansion of trade–related infrastructure. The *NST–1* promotes a service–led and knowledge–based economy, improved agricultural production, exploiting natural resources, and environmental protection.

Rwanda aspires to Middle–Income Country status by 2035 and High–Income Country status by 2050. The *NST–1* economic transformation targets are 1.5 million (214 000 annually) decent and productive jobs; sustainable urbanisation from 18.4% (2016/17) to 35% by 2024; a globally competitive knowledge–based economy; industrialisation; a structural shift in the export base to high–value goods and services to grow exports by 17% annually; increasing domestic savings; positioning Rwanda as a financial services hub to promote investments; modernising and increasing agricultural and livestock productivity; promoting sustainable environmental management to transition to a green economy.[7]

1.2 BACKGROUND

The *Rwanda Skills Supply and Demand Report (2022)* views people's development as more than a human capital variable in a macroeconomic equation. It is a report about people and how they interact with the economy, labour market and education. The most valuable asset of a country is its people – their collective knowledge and wisdom, experiences, education, skills, health, and ambitions, otherwise referred to as intellectual capital. Developed economies were not built by PhD graduates but by skilled craftsmen and artisans who built roads, bridges, dams, hospitals, schools, and transport systems. No country has advanced to high–income status without a sturdy technical and vocational skills base, and Rwanda is no exception.

Education is often blamed for not supplying the appropriate skills to meet labour market demand. High unemployment is often assigned to skills mismatches or deficits. Labour is a derived demand. It is influenced by aggregate demand for products

[7] Government of Rwanda (2017) 7 Years Government Programme: National Strategy for Transformation (NST1). GoR: Kigali.

and services, which, in turn, influence economic performance, macroeconomic policy, economic structure, business cycles, and commodity prices, to list a few.

The *Report* is a part of a broader initiative to align skills development to the country's national economic and social imperatives. It supports the Rwanda Development Board's Chief Skills Office in implementing the *National Skills Development and Employment Promotion Strategy (NSDEPS)*. The *NSDEPS* focuses on demand–driven interventions to meet the business and investors' human resource needs. It aims for a strong private sector engagement in which businesses drive interventions.

The NSDEPS consists of three pillars:

Pillar 1: Skills Development – The pillar will ensure that skills development is demand–led. It will be achieved through several interventions and programmes. A national *Training and Education Excellence Programme* will award high–performing institutions and best practices. A *Market–led Approach* will support demand–led initiatives by the private sector and the revitalisation of the sector skills councils. A *Capacity–building Programme* will ensure the private sector and investors are provided with the skills they need, and that capability levels are raised in the public sector.

Pillar 2: Employment Promotion – The pillar will ensure SMEs invest in their personnel, support business growth, and create jobs. The *Access to Market Programme* will improve entry to national and international markets. The *Access to Capital Programme* and a *Higher Quality Business Advisory Services Programme* will improve finance, business advice and knowledge. A *Labour Market Analysis Programme* will help understand the impact of interventions and provide a more focused employment creation approach.

Pillar 3: Matching – The pillar will develop a well–functioning job ecosystem to connect job seekers to employers. Employment services will be strengthened, and a *Career Guidance Programme* will promote improved linkages between the skills supply and demand. The *Graduate Labour Market Transition Programme* will build relevant youth skills and develop enterprises. The *Global Talent and Opportunity Programme* will seek skilled individuals, especially foreigners and diaspora, for local jobs.

The report intends to improve the responsiveness of the education and training system to meet the country's skills needs. It informs skills planning and provisioning and assists individuals in making the appropriate career choices. Moreover, it resonates with Vision 2050 and National Strategy for Transformation by identifying occupations and skills that will drive inclusive growth and development.

1.3 POLICY CONTEXT

There are national policies, strategies and plans shaping the skills development landscape:

National Policies, Strategies and Laws	Skills Development Implications
Vision 2050	
Vision 2050 is anchored in five pillars: human development, competitiveness and integration, agriculture for wealth creation, urbanisation and agglomeration, and accountable and capable state institutions.[8]	▪ A market–driven and competency–based education system prioritise innovative jobs in ICT, tourism, aeronautics, computer programming and venture capital. ▪ Build a productive society through TVET and tertiary education. ▪ Encourage private sector companies to give youth on–the–job worker training and work placements.

[8] Republic of Rwanda Ministry of Finance and Economic Planning (2015) *Vision 2050*: https://www.nirda.gov.rw/uploads/tx_dce/Vision_English_Version_2050_-31_Dec_2020.pdf

National Policies, Strategies and Laws	Skills Development Implications
National Strategy for Transformation (NST1) 2017–2024	
This strategy lays the foundation for decades of sustained growth based on the following pillars – economic transformation, social transformation and transformational governance. Its five priorities are high quality and standards of life, developing modern infrastructure and livelihoods, transformation for prosperity, values for Vision 2050, and international cooperation and positioning.[9]	▪ Free universal basic education resulted in a net enrolment of almost 100% in primary school. Gender parity was achieved with more girls than boys in primary school. ▪ Scale up the percentage of TVET graduates from 31.1% to 60% by 2024. ▪ Establish and maintain new and existing Centres of Excellence in science, technology and innovation. ▪ Business process outsourcing programme to build IT and technological skills. ▪ Make Rwanda a financial services centre, improve skills and attract foreign investors. ▪ Promote industrialisation, export high–value goods and grow exports by 17% annually.

[9] Rwanda Ministry of Finance and Economic Planning. (2017). *7 Years Government Programme: National Strategy for Transformation (NST1)*. https://www.minecofin.gov.rw/index.php?eID=dumpFile&t=f&f=12464&token=206d23b5640d50ee08ce4db3a852e5f60f9902ed

National Policies, Strategies and Laws	Skills Development Implications
National Skills Development and Employment Promotion Strategy (2019 – 2024)	
The five key themes are demand–driven interventions, private sector engagement, impact–led, test and learn, and performance–based management. The strategy will leverage Rwanda's growing expertise in technology for evidence–based workforce planning and matching by supporting workforce upskilling through the *Capacity Development Programme*. [10]	▪ Develop skills through the *Capacity Development Programme*. ▪ The *National Training and Education Excellence Programme* will measure TVET and Higher Education performance, identify best practices and solve problems. ▪ The market–led education initiative elevates the private sector's voice, reinvigorates Sector Skills Councils, and ensure that the sectoral skills gaps are addressed. ▪ Capacity Development Programme will be responsive to investors and the government's development priorities (e.g., financial hub, health tourism, etc.)

[10] Akamanzi, C. (2019). *National skills development and employment promotion strategy 2019-2024.* Rwanda Development Board.

National Policies, Strategies and Laws	Skills Development Implications
Revised National Employment Policy	
It aims to stimulate economic growth, enhance skills, promote entrepreneurship and access to finance for youth, women and persons with disabilities (PWDs); strengthen the labour market information system; integrate employment, macro–economic policies and investment strategies to job creation; manage labour mobility, and promote formalisation.[11]	▪ Youth are given access to education, especially secondary education. ▪ Reform the TVET and higher education systems to respond to labour market demand. ▪ Enhance TVET quality with a focus on more practical/hands–on training. ▪ Develop demand–driven skills.

[11] Ministry of Public Service and Labor (2019) *Revised National Employment Policy*. https://www.mifotra.gov.rw/fileadmin/user_upload/Mifotra/Publication/_POLICIES/FINAL__REVISED_NATIONAL_EMPLOYMENT_POLICY.pdf

National Policies, Strategies and Laws	Skills Development Implications
Rwanda National Youth Policy (2015)	
The priority domains are education and skills development; employment, productivity and economic empowerment; employable skills and work attitudes; ICT; youth health, social welfare and sexuality education; arts, sports, recreation and talent development; youth mobilisation, participation and outreach; and youth nurturing for the global opportunity.[12]	▪ TVET and quality vocational training to provide hands–on/practical training. ▪ A responsive education and training system to meet current and future youth needs. ▪ Combat illiteracy, poverty, unemployment, and HIV/AIDS among youth.
Rwanda Digital Talent Policy	
This policy aims to increase digital skills and literacy. It is market–oriented, globally benchmarked ICT skills and literacy courses. Digital literacy will increase the demand for electronic services and content,	▪ A five–year priority skills development programme in telecommunications, computer networking, database, software engineering and mobile applications, multimedia, digital design, information security and IT project management.

[12] National Youth Council of Rwanda (2015) *National Youth Policy*. https://www.nyc.gov.rw/fileadmin/templates/template_new/documents/National_Youth_Policy.pdf

National Policies, Strategies and Laws	Skills Development Implications
improve productivity, innovation, and entrepreneurship, attract Foreign Direct Investment (FDI) and reduce social exclusion.[13]	▪ It will implement national digital skills and literacy programme to create 200 000 new jobs.
Rwanda Country Strategic Plan (2019–2023)	
The plan is focused on achieving food and nutrition security in Rwanda. The four strategic outcomes are nutritious food for refugees and returnees, food–insecure communities, children under five, adolescents, and pregnant and nursing women and girls. Smallholder farmers, especially women, have increased marketable surplus and access to agricultural markets through efficient supply chains by 2030.[14]	▪ Successful implementation of national agricultural programmes for increasing the productivity of smallholder farmers through approaches such as crop intensification, dairy promotion and erosion control. ▪ Good governance and justice as building blocks for equitable and sustainable national development. ▪ Increase skills development to help low–income households attain sufficient quality food.

[13] Republic of Rwanda Ministry of Youth and ICT(2016) *National Digital Talent Policy*. Kigali : https://rwandatrade.rw/media/2016%20MINICT%20Digital%20Talent%20Policy.pdf

[14] World Food Programme. November 2018. *Rwanda Country Strategic Plan (2019-2023)*. *https://docs.wfp.org/api/documents/53e2deb348c64401aeebda0cd5525df4/download/*

1.4 AIMS AND OBJECTIVES

The objectives are the following:

- Identify current and future **occupations in demand** and **skills gaps**.
- Inform supply–side **enrolment planning** and provisioning.
- Demand whether the current **qualifications mix** meets training demand.
- Assist youth and workers in making wise educational and **career choices**.
- Respond to **youth unemployment** by improving college–to–work transitions.
- Align skills development to the government's economic growth **strategies and plans**.
- Address **high informality** levels in the labour market.

1.5 DEFINITIONS

1.5.1 SKILLS

SKILL

- A “skill” is the ability to conduct a task as per the work specification or work standard.
- Occupational analysts use “skills” to look at broader human capacities.
- We distinguish between task analysis and skills analysis. Whereas “task” refers to the job to be done, “skills” refer to the human capacities required.

Skills are divided into **two categories**:

Skills gaps – these are “top up” skills, e.g., computer literacy skills or management skills.

Occupations – a similar jobs across different work settings. Defined by an occupational title, e.g., nurse, teacher, plumber, teacher, cashier, accountant.

Skills levels are measured by:

The complexity and scope of tasks in an occupation.

The education level required for task competence.

Occupations and education level are a proxy for skills levels.

SKILL MISMATCHES

Skills mismatches occur when employer skills demand is not met by the skills supply (stock) in the labour market. It leads to skills imbalances – oversupply or under supply of skills (skills shortages).
The aim is to identify skills mismatches and reduce it through demand–led education and training that meets employer demand.

1.5.2 SKILLS SUPPLY

Skills Supply

- Skills supply refers to the **availability of people** (employed/unemployed) for jobs at different skills levels.
- Skills supply is about the **type** (education qualifications acquired or occupations**) and volume** (approximate number) of skills available – stock of skills.
- It is also measured in terms of the **flow** (volume) of skills supplied to employers over a period.

Labour Market Information System

- The LMIS should provide accurate information on the **types** and **volume** of occupations available to meet employer demand.
- If supply is aligned to employer demand, there is skills match (efficient). If it is not, a skills mismatch exists (inefficient).
- The LMIS should provide data to reduce incidents of skills mismatches (inefficiencies).

Reasons

- Simply increasing skills supply is not always good, if there is a low skills demand leading to surpluses (unemployment and underemployment).
- Not all occupation shortages are skills related. Sometimes a shortage may arise due to low wages, poor working conditions, or job location. Therefore, it does not warrant training more people, but dealing with industrial relations problems to increase supply.
- Therefore, skills planners should identify the reasons for occupation shortages because distinct reasons require different responses.

1.5.3 SKILLS DEMAND

Skills Demand

- **Skills demand** is the acquisition of skills to acquire jobs that employers want filled. It is also referred to as labour, occupational or employer demand.
- The skills demand is a **derived demand** – it is dependent on conditions in the market. A growing demand for products and services increases skills demand.
- Skills demand is **measured** along two dimensions:
- **Occupations** – education qualifications are sometimes a proxy for occupations.
- **Competencies** (skills gaps or top–up skills) in the workplace.

Approach

- The **common approach** is to estimate the type and volume of jobs vacancies in a sector(s).
- Job vacancies that arise: (1) may be filled (**demand is met**); not filled (**demand is unmet**). Unmet demand is referred to as a **skills shortage**.
- If demand is met there is skills match (efficient). If it is not met, a skills shortage exists (inefficient).
- LMIS Planning must reduce incidents of skills shortages in the labour market.

Latent or Future Demand

Sometimes a government may want to:

- "pull" or "augment" their economy out of a low growth cycle
- low path dependency (low skills demand and low skills supply)
- upgrade the economy
- move products and services up the value chain
- encourage innovation and technology (knowledge–based economy)
- improve workforce productivity

This is referred to as **future or latent demand.** Governments develop **national plans**. In Rwanda, Vision 2050, National Strategy for Transformation 1, and the National Skills Development and Employment Promotion Strategy outline current and future skills demand.

1.5.4 SKILLS MISMATCHES

Skills Mismatches

- For skills investments to be effective, there should be a match between the jobs available and the skills acquired, or skills (labour) supply and skills (employer) demand in terms of type and volume.
- Public and private investments in skills will not have a desired effect for individuals, businesses, and the country, unless the skills acquired are those wanted by the labour market.
- There is a skills mismatch when individuals do not acquire the skills, they need for jobs available, and employers do not get the skills they want.

Skills Surplus (supply exceeds demand)

- The volume of skills supply is too large relative to demand for them, or demand is too low to employ all the skills that are available.
- Demand is fully met and there are surplus skills available that are not employed.
- This situation is characterised by unemployment (skills are not used) or under–employment (skills are under–utilised).

Skills Deficiency (demand exceeds supply)

- **Skills (occupational) shortages:** Occupational demand exceeds skills supply in the external labour market.
- **Skills (competency) gaps:** Skills demand exceeds skills supply in the internal labour market of firms. This situation requires top–up skills.

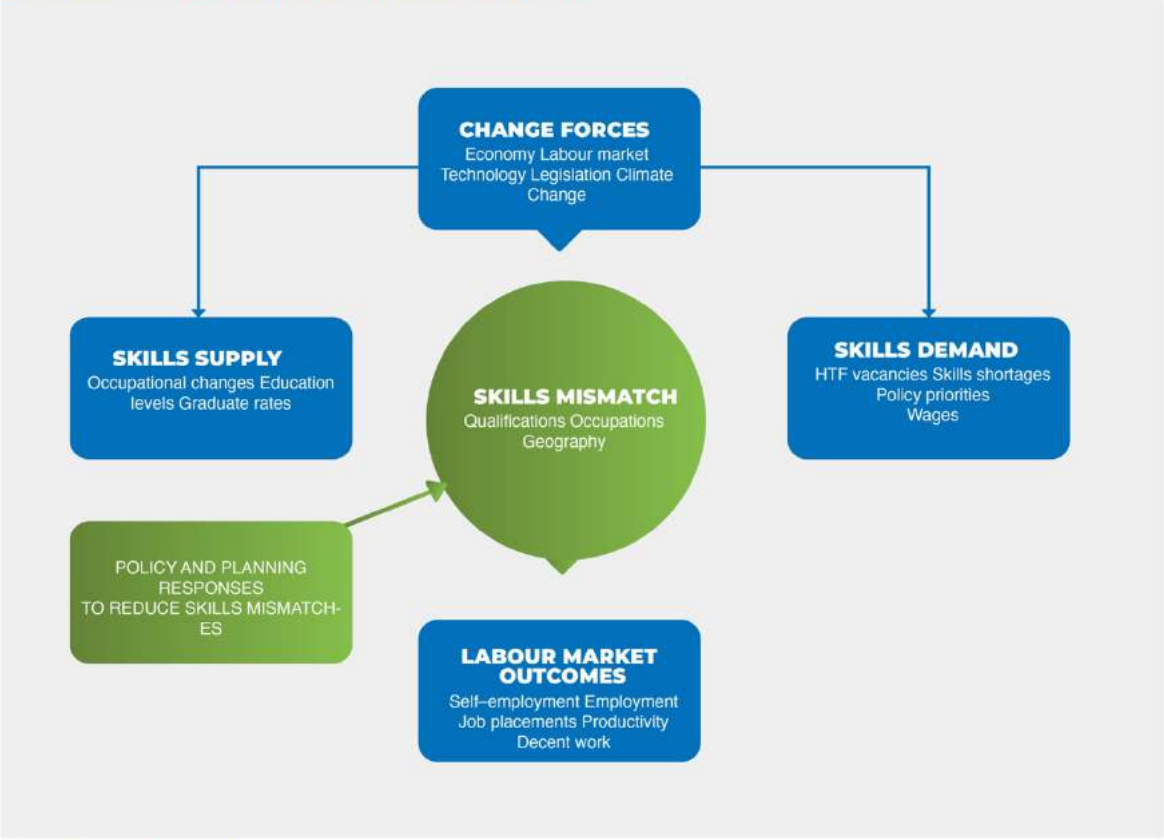
1.6 METHODOLOGICAL CONSIDERATIONS

1.6.1 ANALYTICAL FRAMEWORK

The *Framework for Skills Supply, Demand and Mismatch Analysis* guides the methodology in this report. Skills planning aims to align skills demand with supply to reduce skills mismatches and increase human capital returns. It requires an understanding of the state of the economy, labour market performance, demography, sectoral structure, and how it is changing due to exogenous change forces.

As a prelude to developing the report, several methodological issues were considered. These include standardising skills definitions and measurements, time scales, and data availability. The report focuses on the substantive issues, data analysis, expert insights, and clear messages to address supply and demand imbalances through policy and implementation.

Exhibit 1: Skills supply, demand, and mismatches



Source: Rasool (2021)

Change forces: Economic and labour market performance, technology, legislation, and climate change are major change forces shaping skills supply and demand.

Skills supply: Graduate rates, occupational changes, and education levels are signals of current and future skills supply.

Skills demand: Hard–to–fill vacancies (HTFVs), skills gaps, policy priorities and rising wages are signals of current and future skills demand.

Skills mismatches: The under and oversupply of skills leads to current and future skills mismatches by occupations, qualifications, and geography.

Responses: Policy and planning responses are required to reduce skills mismatches.

1.7 STRUCTURE

The report is set out in the following sections:

SECTION ONE: INTRODUCTION

Offers an orientation to the Rwanda Skills Supply and Demand Report.

SECTION TWO: ECONOMY

Profiles the Rwandan economy. It examines economic performance and sectoral issues.

SECTION THREE: LABOUR MARKET

Profiles the Rwandan labour market and discusses key labour market indicators.

SECTION FOUR: SKILLS SUPPLY

Describes the supply of skills from the schooling, TVET, and university sectors into the labour market.

SECTION FIVE: SKILLS DEMAND AND SKILLS MISMATCHES

Discuss new and emerging occupations and top–up skills or skills gaps.

SECTION SIX: FUTURE SKILLS

Emerging occupations and top–up skills.

SECTION SEVEN: FINDINGS AND RECOMMENDATIONS

Provides the key findings and recommendations from the preceding analysis.

SECTION TWO: ECONOMIC PROFILE

2.1 OVERVIEW

Rwanda has made remarkable economic and social progress in the two decades before COVID–19. Economic growth averaged 7.2% between 2010 and 2019, life expectancy increased, and per capita income almost tripled due to reforms. The country has made excellent progress in increasing the average adult age and reducing maternal mortality rates to levels approaching lower–middle–income countries. Poverty rates (measured as US$1.90 a day) have also been falling from 77% in 2001 to 55.5% in 2017.[15]

The private sector has registered substantial growth over the last six years. Private investments to GDP doubled from 5.8% in 2006 to 11.6% in 2020.[16] Small and medium–sized enterprises (SMEs) still dominate Rwanda's private sector representing over 90% of businesses and 41% of employment. Most firms are nascent, informal, and concentrated in the non–tradable sectors[17]

Rwanda aims to accelerate economic transformation by boosting inclusive private sector–led growth and creating higher value–added formal wage employment. It is developing skills for higher value–added economic activities. It is strengthening physical infrastructure to enhance productive resources and reduce business costs while improving skills and financial capabilities to foster private sector and productivity–led growth. Economic diversification is underway with value chain strengthening in agro–processing, financial service, ICT, green industries and business process outsourcing.[18]

The Rwanda Decent Work Country Programme (2018–2022) promotes social justice, social security, employment promotion, entrepreneurship and labour relations. The interventions are being implemented in line with the current development frameworks in Rwanda.[19]

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[15] IMF (2022) IMF Country Report No. 22/7, 10 January. http://www.imf.org

[16] African Development Bank (2021) Republic of Rwanda Country Strategy Paper 2022-2026. October.

[17] Non-tradable sectors include construction, distributive trade, repairs, transport, accommodation, food services activities (GHI), real estate activities (L), business services (MN), and public administration (OPQ).

[18] African Development Bank (2021) Republic of Rwanda Country Strategy Paper 2022-2026. October.

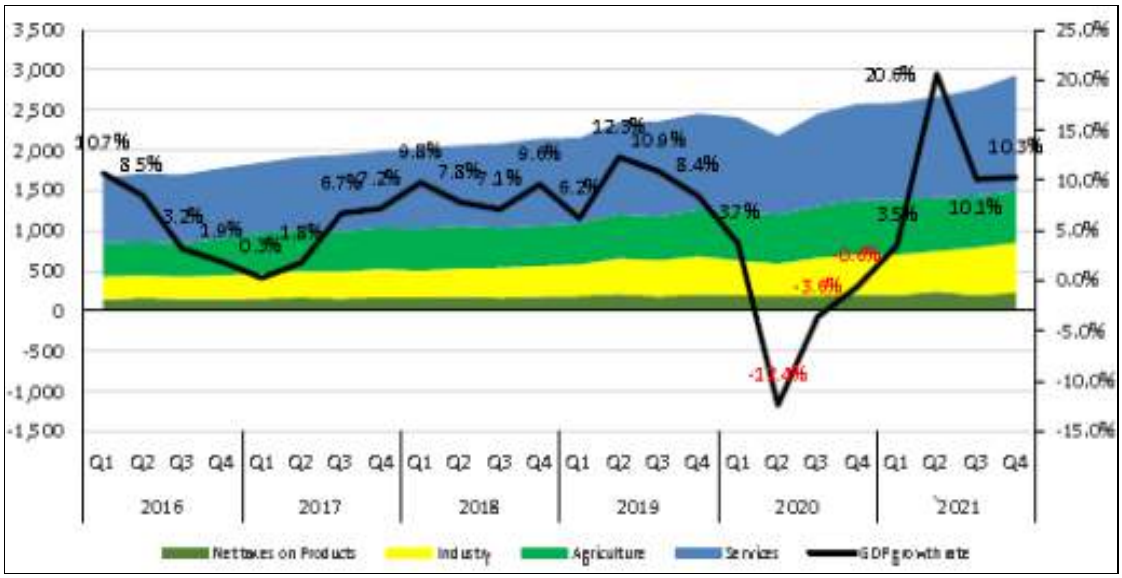
[19] ILO (2018) Rwanda Decent Work Country Programme (2018-2022). ILO: Geneva.

The pace of poverty reduction is significant. Between 2010 and 2017, the rate of people living below the poverty line decreased from 49% to 38%, and those under extreme poverty from 24% to 16% in the same period. Reducing poverty by 10% in six years is a record in the elasticity of poverty reduction to economic growth.[20]

2.2 GROSS DOMESTIC PRODUCT

Rwanda recorded an impressive GDP growth averaging 7.3% from 2015 to 2019. The COVID–19 pandemic drove the economy into a recession in 2020.

Exhibit 1: GDP structure and growth rate (2016–2021)



Source: National Institute of Statistics Rwanda

Growth decreased from 10.7% in Q1:2016 to 0.3% in Q1:2017 mainly due to the global commodity price shocks, which significantly affected Rwanda's export sector but picked up strongly in 2018 and 2019 due to increased public infrastructure investments.

After contracting by 23.3% from Q2:2019 to Q2:2020, trade, travel and tourism economic activity is staging a recovery from a very low base. Real GDP recorded a sharp increase of 33% in Q2:2021 to 20.6%, with agriculture, industry and services staging a comeback.

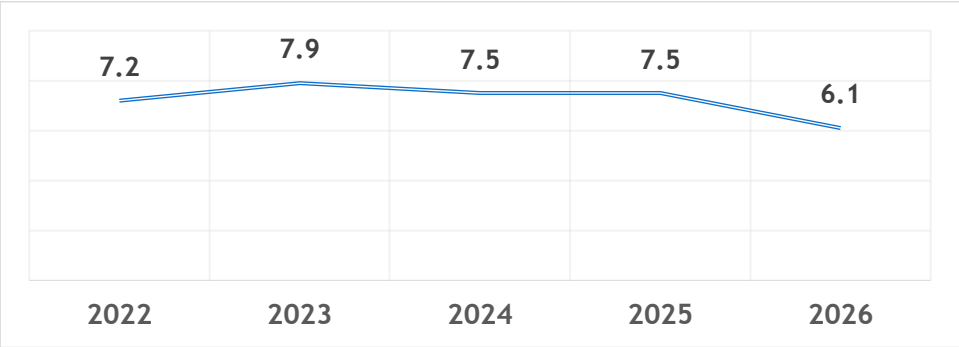
[20] http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-5-eicv-5

While the COVID–19 shock is expected to be transitory, Rwanda's economy has been hit hard by the COVID–19 pandemic with growth implications. On the positive side, Rwanda is one of the few African countries to achieve the goal of vaccinating over 60% of its population for COVID–19.[21]

In factor–driven economies like Rwanda, commodity price fluctuations dictate economic and labour market outcomes. Economic diversification acts as a shock absorber when markets are volatile. To buffer shocks, Rwanda should pursue diversifying its products and services mix, strengthening value chains in productive and tradable services sectors. Skills development is a key pillar of value chain strengthening. Therefore, skills development training mix in TVET and higher education should respond value chain skills needs. Furthermore, there should be a push for stronger integration into global value chains.

The IMF growth projections for 2022–2026 are positive.

Exhibit 2: GDP projections as a percentage (2022–2026)



Source: National Institute of Statistics Rwanda

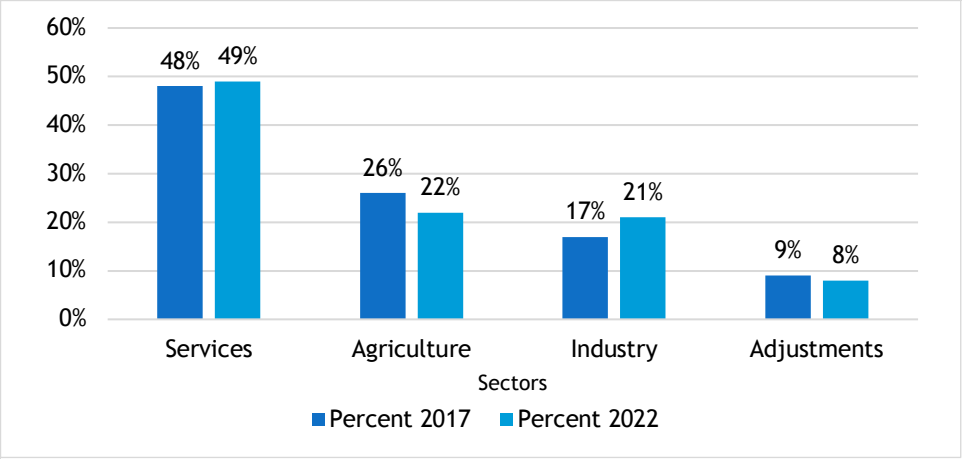
Real GDP is projected at 7.2% in 2022 and is expected in the mid–range of 7.5% until 2025. Skills development should underpin and accelerate GDP growth.

[21] https://www.africanews.com/2022/04/08/rwanda-has-vaccinated-over-60-of-its-population//

2.3 SECTOR SHARES

The exhibit shows the percentage of GDP share contribution and changes between 2017 and 2022.

Exhibit 3: Sector GDP shares (2017–2022)



Source: National Institute of Statistics Rwanda

In Q4:2021, services contributed 49%, agriculture 22%, industry 21% and adjustments 8%. Services increased by 1% from 2017. Agriculture declined by 4%, while industry increased by 4%. Rwanda's sector shares have shifted marginally, reflecting a slower pace of economic upgrading.

Weak services sector growth was a consequence of the impact of COVID–19 on the economy. Services include tradable and non–tradable services. The challenge is to grow tradable services in IT, finance, advisory, tourism, health, education, telecommunications and logistics, which requires relevant skills development responses.

Non–tradable services include jobs in government, health care, hospitality, food service, education, retail, transport and construction. The challenge is to improve the working condition, skills and wages for atypical workers in non–tradable services, except government and healthcare, where conditions and salaried employment exists.

The growth of industry, despite COVID–19, shows that structural transformation is taking place. The movement of agricultural workers to industry through urbanisation requires more attention to skills development as labour productivity is an issue in agriculture.

2.4 INDUSTRY SHARES

The agricultural sector's breakdown reflects its GDP contribution.

Exhibit 4: Agriculture GDP shares (2017–2022)

INDUSTRIES	Percentages	
	2017	2022
Agriculture	26	22
Food crops	17	11
Export crops	2	2
Livestock & livestock products	2	3
Forestry	5	6

Source: National Institute of Statistics Rwanda

Agriculture is Rwanda's main economic activity, with 70% of the population engaged in the sector and around 68% of the working population employed in agriculture. The sector contributes about 25% to GDP and stands out as one of the most strategic sectors in Rwanda's development. It accounts for a more significant part of the foreign exchange earnings from the exports of products, including coffee, tea, hides and skins, pyrethrum, and horticulture. About 75% of Rwanda's agricultural production comes from smallholder farmers.

Agriculture GDP shares declined from 26% to 22% between 2017 and 2022. All industries recorded declines, except forestry, which grew marginally by 1%. The decline in agriculture is also attributable to the decreasing quality and productivity of the highly lucrative but climate–sensitive cash crops (tea and coffee).[22]

Vision 2050 stresses the importance of agro–processing, technology–intensive agriculture, and greening. Since most agricultural production comes from smallholder farms, it is a segment that requires protracted technical support and skills development.

Skills development is needed in land and soil maintenance, land use and distribution, irrigation, production techniques for crops and livestock, livestock care, financial management, and efficient farming practices.

[22] African Development Bank (2021) Republic of Rwanda Country Strategy Paper 2022-2026. October.

A comparison of industry and services GDP shares reveals the following:

Exhibit 5: Industries GDP share (2017–2022)

Industries	Per cent		Industries	Per cent	
	2017	2022		2017	2022
INDUSTRY	**17**	**21**	**SERVICES**	**48**	**49**
Mining & quarrying	2	4	**Trade & Transport**	**13**	**17**
Total manufacturing	8	9	Maintenance/repair vehicles	1	1
Food	3	3	Wholesale & retail trade	8	11
Beverages & tobacco	2	2	Transport	5	6
Textiles, clothing & leather goods	0	1	**Other Services**	**35**	**32**
Wood & paper; printing	0	0	Hotels & restaurants	2	1
Chemicals, rubber & plastic products	0	1	Information & communication	2	2
Non–metallic mineral products	0	0	Financial services	3	3
Metal products, machinery & equip	0	0	Real estate activities	7	6
Furniture & other manufacturing	1	1	Professional , scientific & Technical activities	2	2
Electricity	1	1	Administrative & support service activities	4	3
Water & waste management	0	1	Public administration & defence; compulsory social security	6	5
Construction	6	7	Education	3	3
			Human health & social work activities	2	2
			Cultural, domestic & other services	5	5

Source: National Institute of Statistics Rwanda

On the services side, wholesale and retail have grown from 8% to 11% in a difficult trading environment. The decline in other services is largely through the COVID–19 impacts.

Manufacturing grew from 17% to 22% over the period and shows potential for post–pandemic growth. Mining and quarrying contributions increased by 100% over the period. Rwanda has a relatively small mining sector with gold, tin, tantalian, tungsten and cement. Manufacturing shares increased marginally by 1% over five years. Activities concentrate on secondary food production, furniture, beverages, tobacco, chemicals and textiles. A strong manufacturing base is needed for productive growth, distinct from consumption, and to create decent jobs. Construction contributed 7% to GDP in 2022. Trade and transport grew by 4%, with wholesale and trade moving from 8% to 11%.

Textiles; agro–processing; mining, IT, financial services and greening are economic growth drivers supporting industrialisation. Rwanda is also looking at promoting mineral–based exports of various ores and metals, as well as exports of hides, skins

and textiles. To this end, the focus should be on skills development to address skills gaps in the economic value chains.

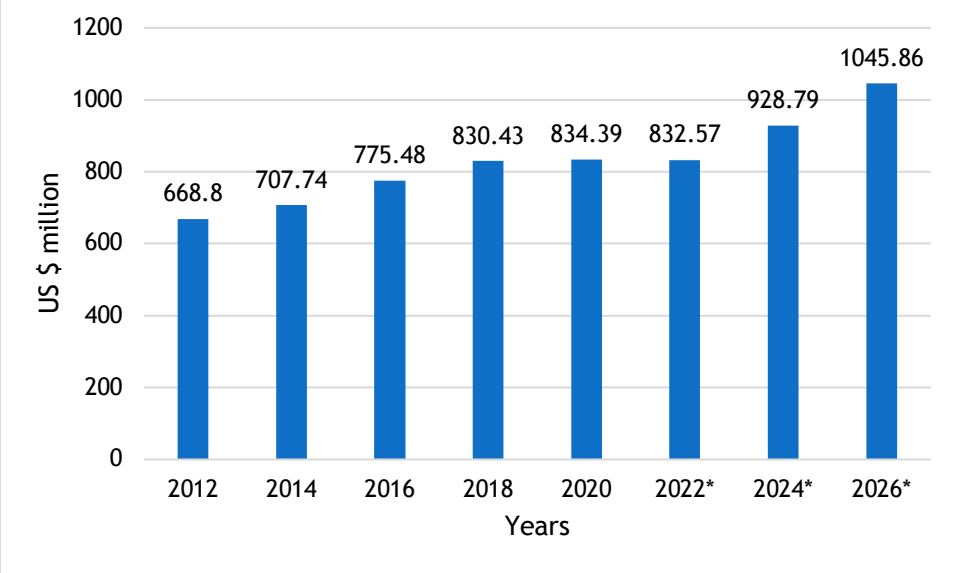
Emphasis will be placed on developing skills for industries with the potential for high value–added production, exports, and job creation.

Investments are needed to build domestic capabilities, infrastructure, skills, trade facilitation and competitiveness in these value chains; plot skills needs along the value chain; and use policy and regulatory levers to protect domestic value chains and local jobs with measures such as import duties on finished products, subsidies to support local industries, export restrictions (raw materials), licencing requirements; trade–balancing and local–content requirements; and compulsory skills and technology transfers.

2.5 PER CAPITA GDP

GDP per capita measures the prosperity of a nation by economic growth per person.

Exhibit 6: Per capita GDP (2012–2026) (US$ million)



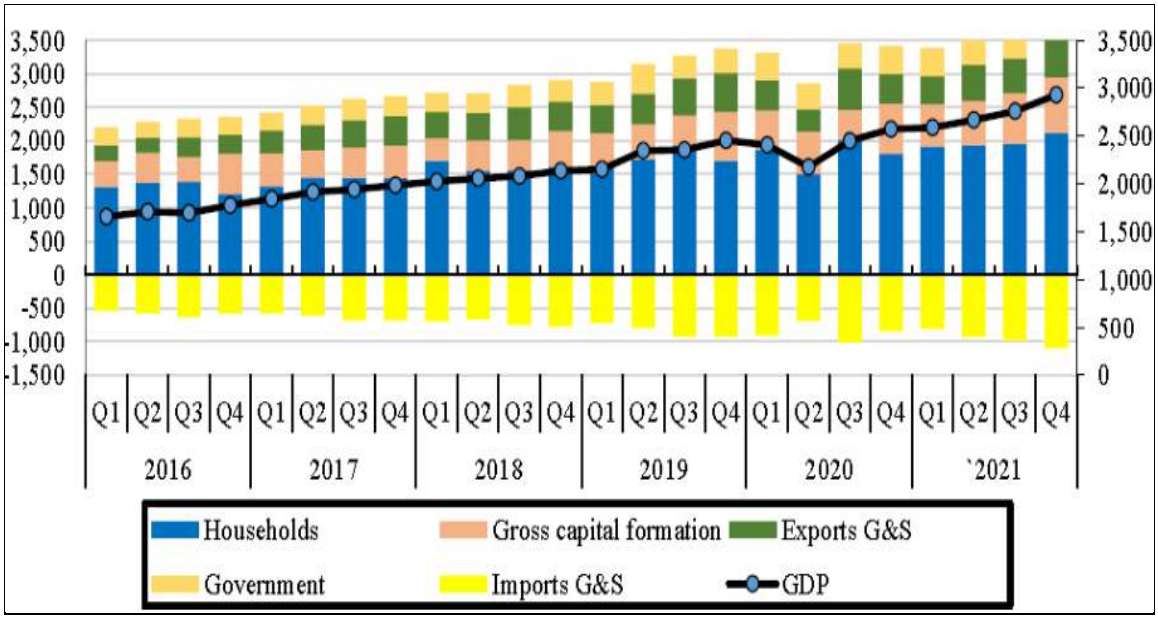
Source: Trading Economics, World Bank (* projected)

The GDP per capita increased from US$668,80 in 2012 to US$834.39 in 2020, a notable 24.75% increase. The 2022–2026 projected per capita increase is 25.61%.

2.6 EXPENDITURE ON GDP

In Q4:2021, total final consumption expenditure increased by 14%, with final government consumption increasing by 8%, while final household consumption increased by 15%.

Exhibit 7: Expenditure on GDP (billions Frw)



Source: National Institute of Statistics Rwanda

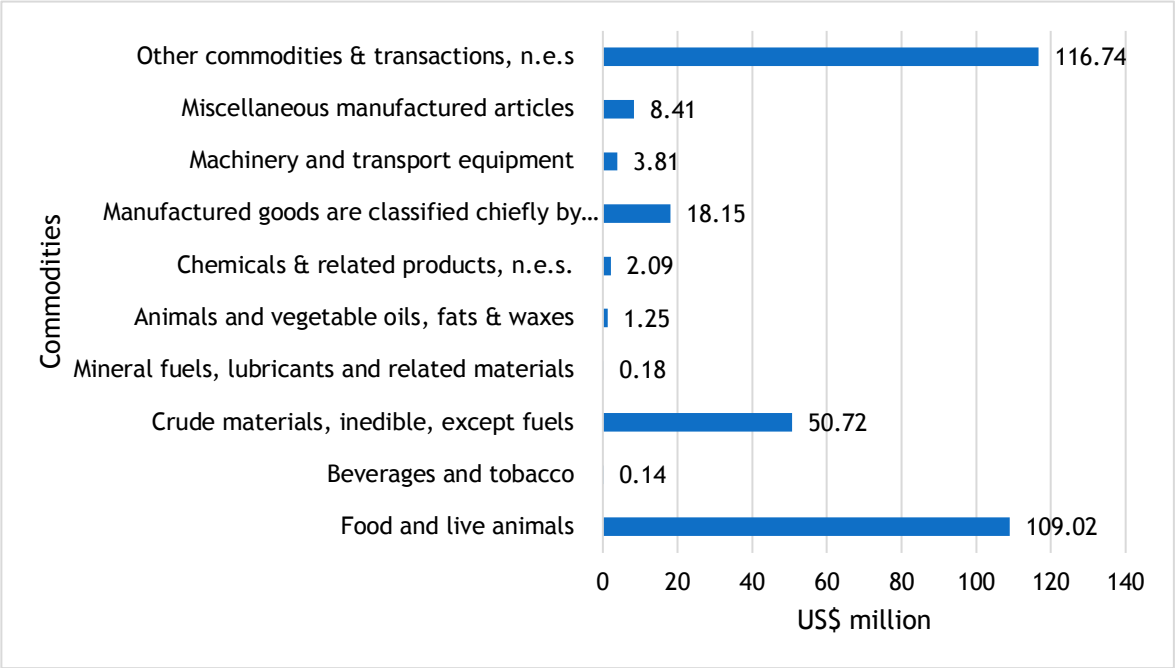
Gross capital formation (GCF) decreased by 6%, while imports and exports increased by 17% and 33%. Growth was largely attributed to physical capital accumulation, while human capital lagged. Public sector investments propelled growth. Contributions from human capital accumulation and total factor productivity (TFP) growth are estimated to have only marginally increased and remained relatively low.[23] These marginal increases imply a need to increase investments in skills development across the workforce.

[23] African Development Bank (2021) Republic of Rwanda Country Strategy Paper 2022-2026. October.

2.7 IMPORTS AND EXPORTS

Rwanda's total trade was US$ 1497.99 million, an increase of 24% y/y. Exports were US$ 310.51 million.

Exhibit 8: Exported goods, 2021 Q4 (US$ million)



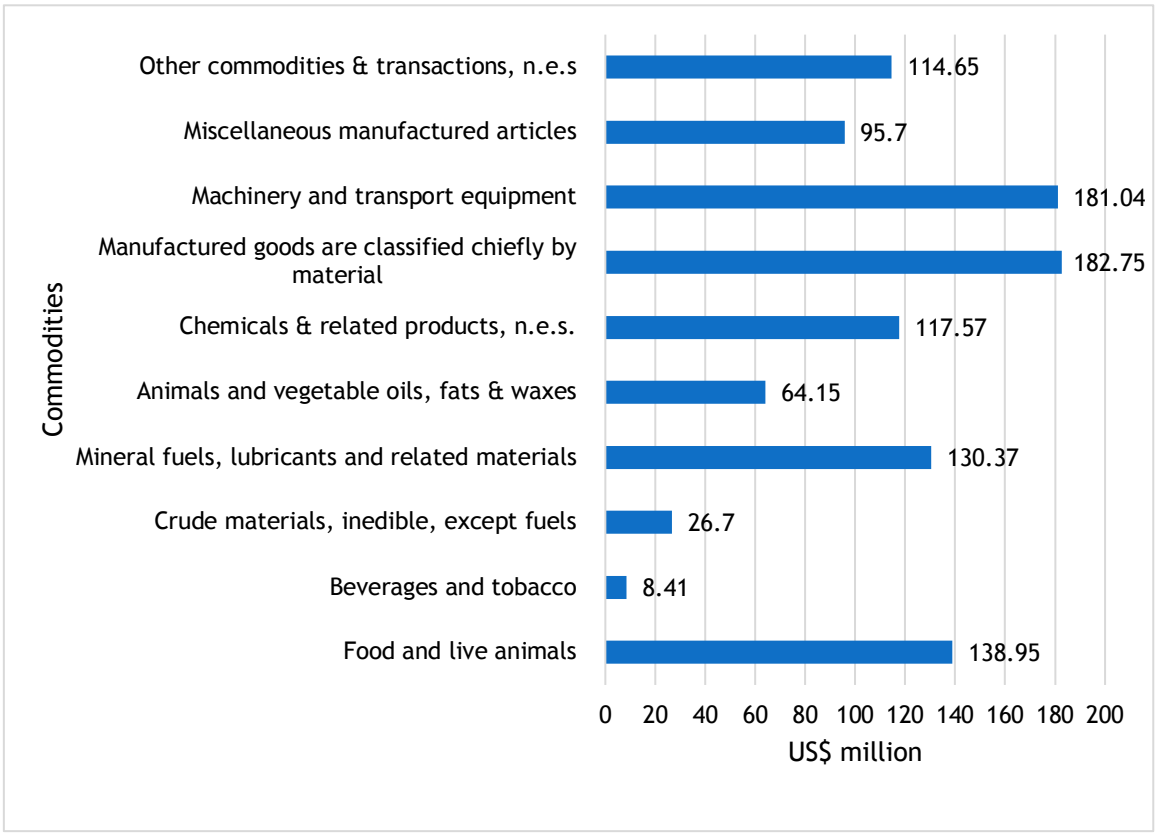
Source: National Institute of Statistics Rwanda

The top five export destinations were the United Arab Emirates, the Democratic Republic of Congo, the United Kingdom, Switzerland, and Uganda. Together, these five countries accounted for 68.41% of the total value of domestic exports (US$ 212.42 million). The commodity groups with the largest export values were other commodities & transactions, n.e.s (US$ 116.74 million), food and live animals" (US$ 109.02 million), and crude materials, inedible, except fuels (US$ 50.72 million).[24]

[24] NISR (2022) Formal external trade in goods, 4th Quarter 2021, March.

Imports were US$ 1060.28 million.

Exhibit 9: Imported goods, 2021 Q4 (US$ million)



Source: National Institute of Statistics Rwanda

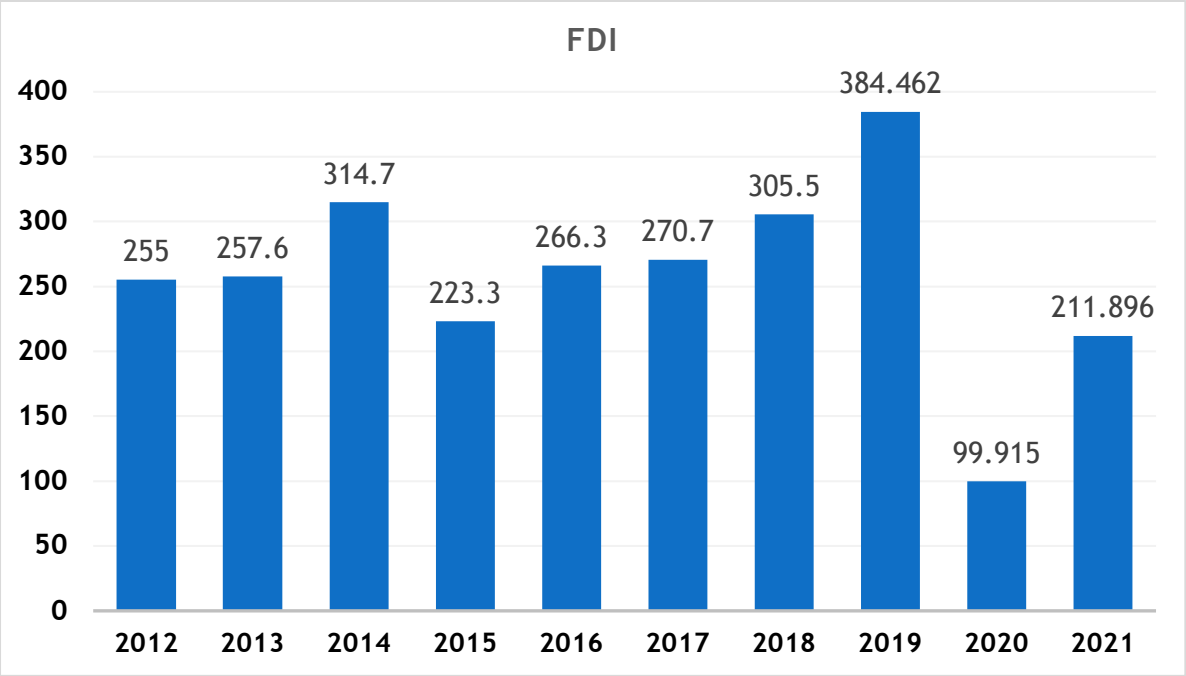
China, Tanzania, the United Arab Emirates, India and Kenya were the top five countries of origin of imports to Rwanda. They totalised US$ 591.23 million of imports, equivalent to a 55.76% share of the total value of imports. The commodity groups with the largest values among the top imported products were manufactured goods classified chiefly by material (US$ 182.75 million), machinery and transport equipment (US$ 181.04 million), food and live animals (US$ 138.95 million).[25]

[25] NISR (2022) Formal external trade in goods, 4th Quarter 2021, March.

2.8 FOREIGN DIRECT INVESTMENT

Foreign Direct Investment (FDI) drives economic growth and job creation.

Exhibit 10: Foreign Direct Investment



Source: Trading Economics, National Bank of Rwanda (*projected)

FDI deteriorated rapidly from 384.462 in 2018 to 99.915 in 2020 due to the COVID–19 pandemic. It rebounded to 211.896 in 2021. Rwanda's main economic drivers are tourism, hospitality, and exports of tea and coffee. These sectors were badly affected by the pandemic. Pro–growth policies open the possibility of increasing FD in future years.

The Government of Rwanda (GOR) has taken a series of policy reforms to improve Rwanda's investment climate and increase foreign direct investment (FDI). In 2018, the GOR implemented additional reforms to decrease construction permitting bureaucracy and establish exporters' electrical services and customs processing times. The country presents FDI opportunities in manufacturing, infrastructure, distribution and transmission, off–grid energy, agriculture and agro–processing, low–cost housing, tourism, service, and ICT.

Rwanda has a progressive skills migration regime. Foreign nationals must obtain a work permit to work in Rwanda. There are five types of permits which cater for different types of employment:

H1: Skilled workers in an in–demand occupation
H2: Skilled workers sponsored by an organisation
H3: Journalist or media
H4: Semi–skilled or artisan workers
H5: International organisation employees

There are additional Rwanda work permit categories for other purposes for students or investors.[26]

2.9 CONCLUSION

Labour, skilled or unskilled, and the economy are inextricably intertwined. The former is informed, dependent and shaped by the latter. Labour is a derived demand, meaning that labour is demanded not for its own sake but its contribution to the production of goods and services in the economy.

Workforce skills are characteristic of the country's economic structure. For example, a country dependent on commodities will follow a low skills equilibrium. Since the Rwandan economy is dominated by agriculture, it is reflected in the low skills base of most of the labour force. As the economy diversifies, it will need to follow a higher skills trajectory to meet aggregate demand in the economy. It is a route pursued by the Government of Rwanda in Vision 2050 and NST–1.

SMME Enterprise Development: About 90% of businesses are medium or small and employ 41% of the labour force. These businesses are nascent, informal, and concentrated in the non–tradable sectors. *Therefore, skills development responses should address SMEs through enterprise development initiatives, skills training, and decent work.*

Sector Skills Councils: Rwanda's challenge is to grow the skills base in the tradable services sector in IT, finance, advisory, tourism, health, education, telecommunications and logistics. As intermediaries between skills supply and demand, Sector Skills Councils should inform the programme mix in training institutions to cater for occupations in demand and skills gaps. *It requires relevant*

[26] https://www.globalization-partners.com/globalpedia/rwanda-employer-of-record/work-visas/#content

TVET and higher education programmes to meet employers' middle and advanced skills needs.

Decent Work: Non–tradable services employment is growing as people move out of agriculture to seek urban employment in hospitality, food service, retail, transport, construction and domestic work. The challenge is to improve the working condition, social security, skills and wages for atypical workers through a decent work programme. If not addressed, low productivity will manifest in service sector jobs, as in the case of agriculture. *It calls for implementing decent work awareness and practices in the workplace. The RDB should align the Decent Work Programme to skills development.*

Promote Skills Training: As a factor–driven economy, Rwanda is sensitive to global commodity price fluctuations, which dictate economic and labour market outcomes. *Skills development is essential to diversifying the economy and supporting value chain strengthening in the productive and tradable services sectors. It entails identifying sustainable, job–rich value chains, building domestic capabilities, infrastructure, skills, trade facilitation and competitiveness in these value chains; plotting sectoral occupation and skills needs along the value chain; and using policy and regulatory levers to protect domestic value chains and local jobs. Therefore, skills development training mix in TVET and higher education should respond value chain skills needs. There should be an emphasis on developing STEM skills*

Rwanda has a progressive skills migration regime. Skilled foreigners can obtain work permits if they meet the requisite requirements. The challenge should be addressed to ensure that foreigners can impart knowledge and skills to the local workers. *There is a need to review and strengthen the skills transfer aspect of migration policy.*

SECTION THREE: LABOUR MARKET PROFILE

3.1 LABOUR MARKET OVERVIEW

An overview of the Rwandan labour market is given. The labour market structure is revealing.

Exhibit 11: Labour market summary (Q1:2022)

<table>
<tr><td colspan="6">Working–age population 16 years and older
7 873 326</td></tr>
<tr><td colspan="3">Outside the Labour Force

(Elderly, cannot work, discouraged work–seekers)
3 580 022 persons</td><td colspan="3">Active Labour Force

(Employed and unemployed)

4 293 305 persons</td></tr>
<tr><td colspan="3">Out–of–labour–force rate
45.5%</td><td colspan="3">Labour force participation rate
54.5%</td></tr>
<tr><td>Subsistence Agriculture

1 500 029 (41.9%)</td><td>Exclusively Students

927 226 (25.9%)</td><td>Other outside labour force
1 152 767 (32.2%)</td><td colspan="2">Employed
3 585 651

Employment to population ratio:
45.5%</td><td>Unemployed
707 654

Unemployment rate:
16.5%</td></tr>
<tr><td colspan="2">Potential labour Force

1 148 093</td><td>Other out–of–labour–force

2 431 929</td><td>Agriculture excl. subsistence</td><td>1 882 466 (52.5%)</td><td>Unemployed but engaged in subsistence agriculture</td><td>383 549 (54.2%)</td></tr>
<tr><td colspan="3" rowspan="3"></td><td>Industry</td><td>523 505 (14.6%)</td><td rowspan="2">Other unemployed</td><td rowspan="2">324 105 (45.8%)</td></tr>
<tr><td>Services</td><td>1 179 680 (32.9%)</td></tr>
<tr><td colspan="3">Time–related under–employed
1 017 801</td><td>Other employed
2 567 850</td><td colspan="2"></td></tr>
<tr><td colspan="6">Labour underutilisation (2 873 5470)
Unemployed (707 654) + Time–related underemployed (1 017 800) + Potential labour force (1 148 093)
Composite measure of labour underutilisation (52.8%)</td></tr>
</table>

Source: National Institute of Statistics of Rwanda (NISR)

The working–age population is those persons aged 16 years and above[27]. The working–age population is 7 873 326, with a labour force participation rate (LFPR) of 54,5% (4 293 305). It implies that just over half the population is in the labour force (including employed and unemployed persons). Of the labour force, 83,5% (3 585 651 people) are employed, and 16,5% (707 654 people) are unemployed. The employed comprises 1 882 466 agricultural workers (excluding subsistence), industry 523 505, and services 1 179 680. Most employees are agricultural workers.

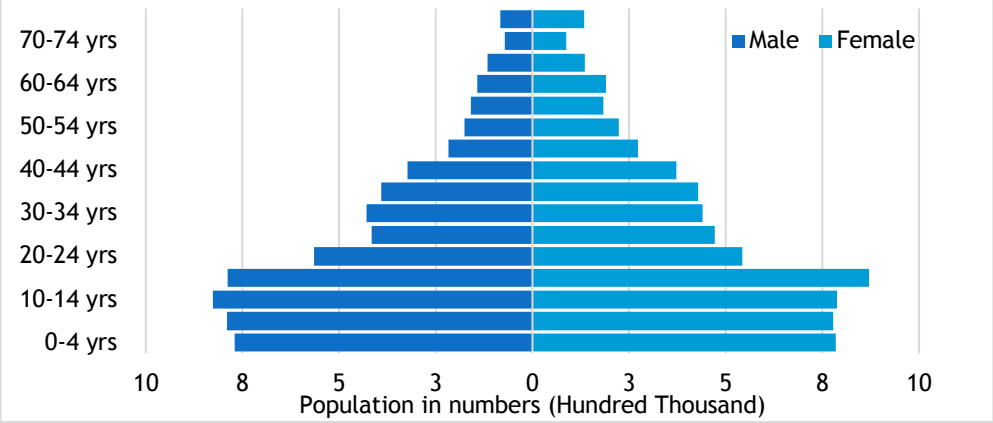
Those outside the labour force include the elderly, those unable to work, and discouraged work–seekers. It constitutes 45,5% of the working–age population. Of that outside of the labour force, 41,9% (1 500 029) are in subsistence agriculture; 25,9% (927 226) are students; 32,2% (1 152 767) are considered as other outside labour force. The rural population are out of the labour force due to the likelihood of participation in subsistence agriculture and limited access to non–agricultural job opportunities.

Agricultural workers who, however defined, are vulnerable to poor wages/income, indecent working conditions, and exploitation. Therefore, Rwanda's goal of transitioning to upper–middle– and high–income status necessitates addressing the plight of agricultural workers. It will require interventions well beyond skills development.

3.2 POPULATION PYRAMID

Rwanda's population pyramid is typical of a developing country.

Exhibit 12: Population structure (Q1: 2022)



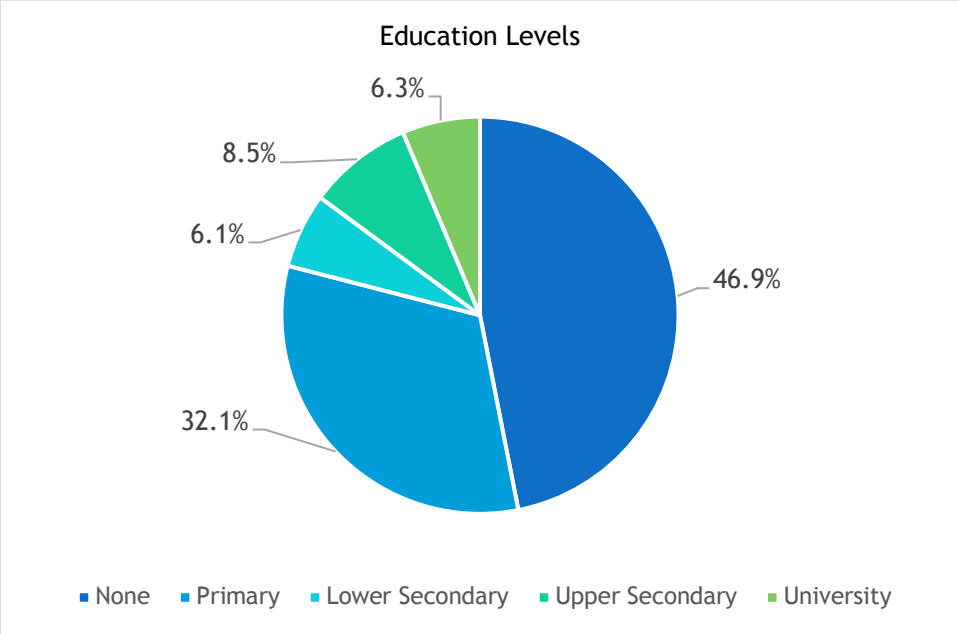
[27] NISR (2021) *Labour force Survey annual report 2021*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

There are approximately 13 million Rwandans[28]. Males comprise 48,3% (6 265 223) and females (51,7% or 6 701 811). The 15–19–year–olds are the largest category, totalling 1 658 128. The 15–29 years comprise 3 653 656 or 28,2% of the population. Rwanda has a youth "bulge" defined as those persons aged 16 to 30 years. It is typical of developing nations. The youth bulge is a demographic dividend if youth are deployed productively.

3.3 EDUCATION LEVELS

Education levels are a proxy for skills and reflect the skills structure of the labour market.

Exhibit 13: Education levels (Q1: 2022)



Source: National Institute of Statistics Rwanda

The labour market structure by education levels is none (46,9%), primary (32,1%), lower secondary (6,1%), upper secondary (8,5%) and university (6,4%). Using education level as a proxy, 79% are low–skilled (none to lower secondary), 8,5%

[28] NISR (2021) *Labour force Survey annual report 2021*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

semi–skilled (upper secondary), and 6,4% are skilled (university). Rwanda's challenge is to ramp up the quality of primary schooling. There are too many people with no education. Expanding schooling should be accompanied by qualitative improvement in teaching and learning standards.

If Rwanda is to achieve upper–income country status, significant improvements must be made to improve education levels. The upper secondary graduates should be improved from 8.5%. It will ensure increased success rates in TVET, and students wanting to attend higher education will improve. Likewise, the number of people with higher education qualifications should be increased to enable the economy to upgrade and develop higher–value–added goods and tradable services.

Improved population education levels will help support the government's efforts toward creating jobs, enhancing inclusive growth and poverty alleviation, promoting a knowledge–based economy, and enhancing the economic dividend through increased access to quality education. A special focus should be given to science, technology, engineering, and mathematics (STEM) across all education levels in Rwanda to increase the relevance for urban and rural markets.

A critical mass of market–driven TVET and specialised skills will promote high value–added production and strengthen productivity, especially in micro, small and medium entrepreneurship (MSMEs). Growth potential will contribute to value chain development and spur job creation for the youth and women.

Exhibit 14: Education levels by gender and residence (Q1: 2022)

Education Level	Total	Sex		Residential area	
		Male	Female	Urban	Rural
Employed population	3 585 419	54.4	45.6	23.4	76.6
None	1 681 699	53.7	46.3	11.9	88.1
Primary	151 227	54.3	45.7	22.2	77.8
Lower secondary	218 596	48.6	51.4	41.5	58.5
Upper secondary	306 344	56,5	43.5	43.9	56.1
University	227 554	61.9	38.1	69.2	30.8

Source: National Institute of Statistics Rwanda

There are more males than females employed with a difference of 8.8% in favour of the former. Similarly, there are differences in education levels by gender in university and upper secondary. Males consist of 61,9% compared to 38,1% of females in university. In upper secondary, there are 56.5% males and 43.1% females. Rwanda is making considerable strides to improve the position of women, but as the figures show, there is still a long way to go. There are also urban–rural divides at the university level, with urban consisting of 69,1% compared to 30,9% rural.

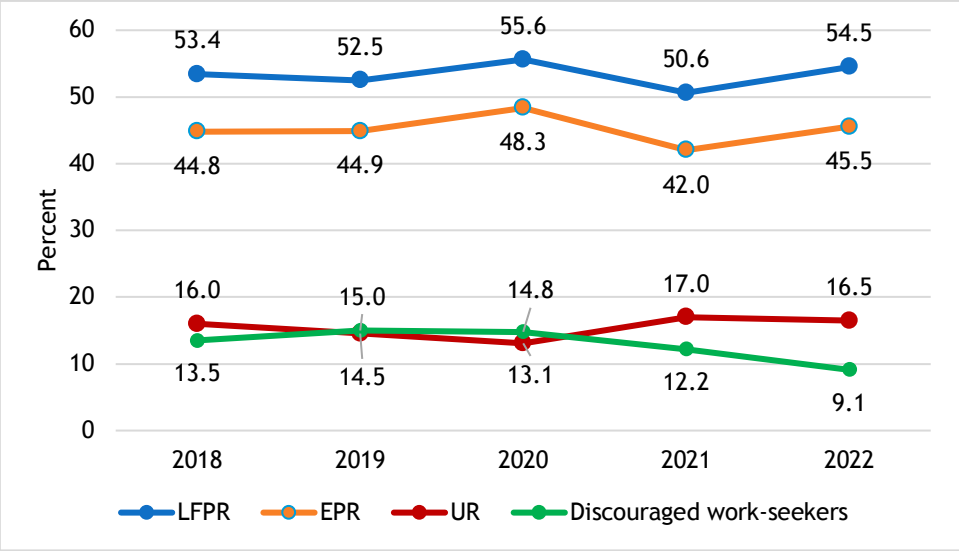
Women are a powerful force in society. Therefore, increasing women's access to education can be a source of change and economic growth as their buying power increases. The key to rural development is to upgrade skills in rural communities.

3.4 LABOUR FORCE PARTICIPATION RATE

The labour force participation rate (LFPR) measures a country's working–age population actively engaging in the labour market by working or looking for work. It indicates the size of the labour supply available to produce goods and services relative to the working–age population.

LFPR, EPR and UR: We track the labour force participation rate (LFPR), the absorption rate (EPR), unemployment rate (UR) and the share of discouraged job–seekers.

Exhibit 15: LFPR, UR & discouraged job–seekers (2018–2022)



Source: NISR LFS 2018, 2019, 2020, 2021, 2022

The overall LFPR oscillated between 2018 and 2022. The EPR followed a similar pattern from 2020 to 2022. Rwanda's LFPR at 54,5% is low compared with the 77% of OECD countries. It means that just 54,5% of the working–age population is working or looking for work for pay or profit. The EPR increased marginally from 44,8% in 2018 to 45,5% in 2022. Currently, there is approximately one employed person per two Rwandans.

The UR increased from 16,0% to 16.5% over five years.[29] Discouraged job–seekers are described as persons outside the labour force who did not actively look for work for a host of labour market–related reasons, including having previously failed to find work; lack of work experience or qualifications; lack of suitable jobs for persons' skills; insufficient job opportunities in the area; or due to being considered too young or old for a certain job.[30]

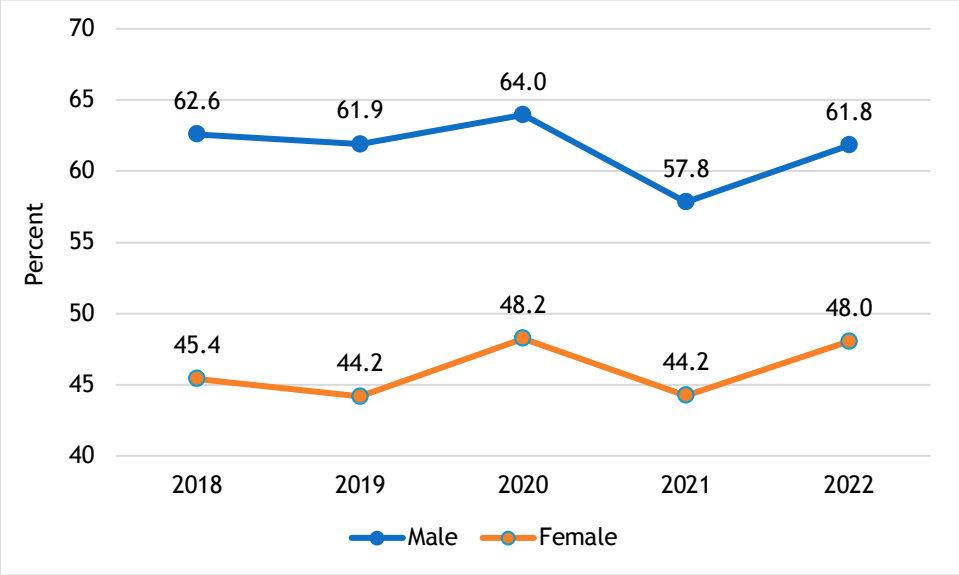
The share of discouraged job–seekers declined from 13,5% to 9,1% by Q1:2022. It shows that people are motivated to find work.

[29] NISR (2022) *Labour Force Survey trends - February 2022 Q1*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

[30] Ibid.

LFPR (gender): The LFPR of both males and females followed the same pattern between 2018 and 2022, decreasing from 2018 to 2019 and then recovering in 2020. Then decreasing again in 2021 before increasing by 2022. Males reached a high LFPR of 64,0% in 2020 and a low of 57,8% in 2021.

Exhibit 16: Labour force participation rate by gender (2018–2022)

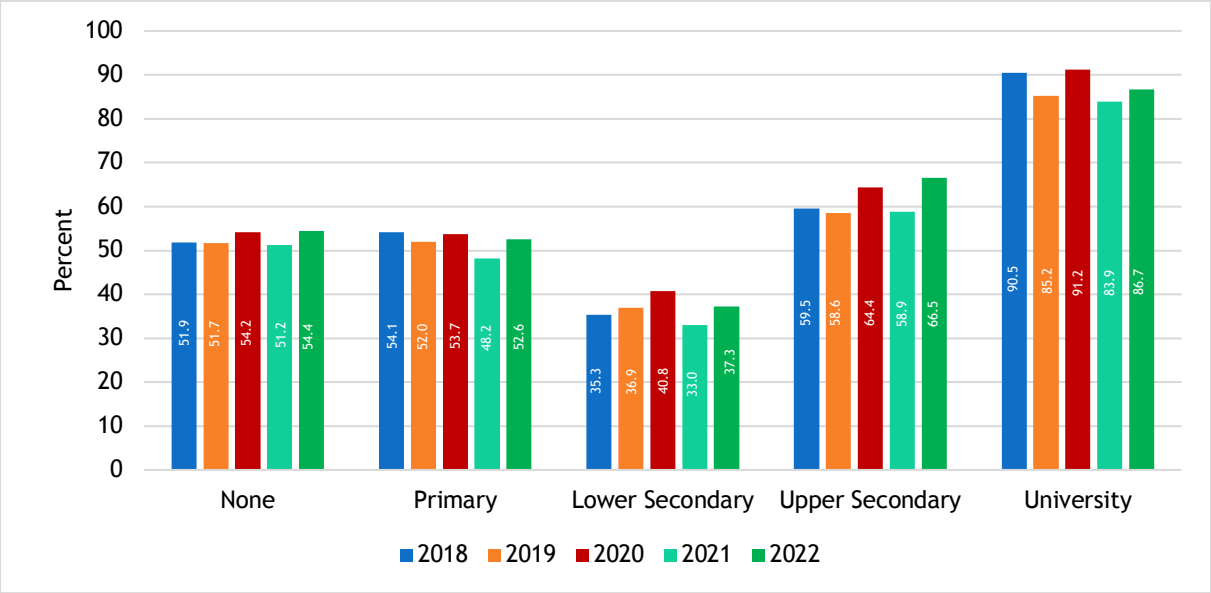


Source: NISR LFS 2018, 2019, 2020, 2021, 2022

Females reached a high of 48,2% in 2020 and a low of 44,2% in 2019 and 2021. The LFPR of males is higher than that of females. It is due to many male–headed households.

LFPR by education level: The LFPR was highest for those with university education, followed by upper secondary education. The lowest LFPRs are seen in the 'lower secondary' category.

Exhibit 17: Labour force participation rate by education level (2018–2022)



Source: NISR LFS 2018, 2019, 2020, 2022

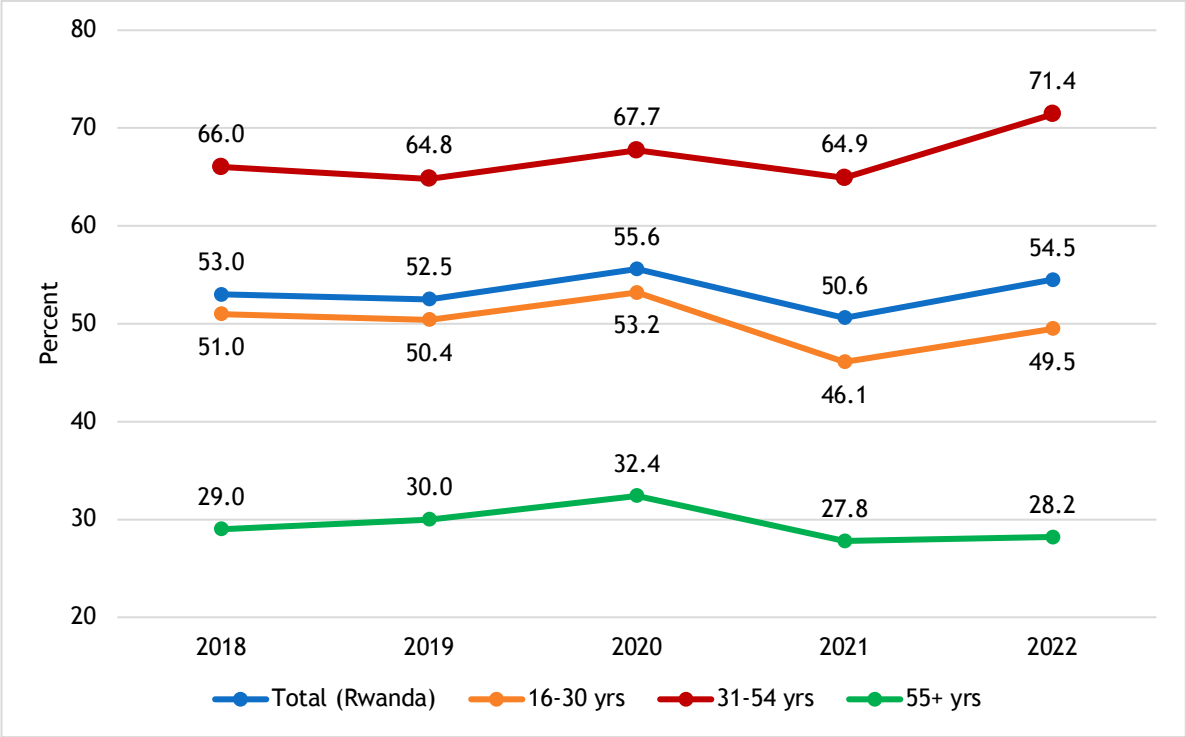
Those with no education and primary education have similar LFPRs. It is higher than those with lower secondary education. People with lower education levels enter the labour market earlier than those with lower secondary education, which may be pursuing tertiary education.

People with better education levels, skills and qualifications are either employed or actively seeking employment.

The exhibit reveals that those with a university qualification have higher labour force participation rates and are most likely employed or seeking employment compared to other categories. It is also higher for upper secondary education graduates. Participation rates are higher for people with no education or primary education compared to lower secondary. The former tends to work since there are job openings for elementary or unskilled work, while those in lower secondary are in school.

LFPR by age: The exhibit compares the LFPRs of selected age groups between 2018 and 2022. The age groups include 16–30 years (or youth), adults aged 31–54, and those aged 55+.

Exhibit 18: Labour force participation rate by age (2018–2022)



Source: NISR LFS 2018, 2020, 2022

The 31–54 years age group is above the national LFPR average. Persons in this age group are more actively involved in employment or seeking employment since they are in the prime of their careers. The 55+ year category has the lowest LFPR.

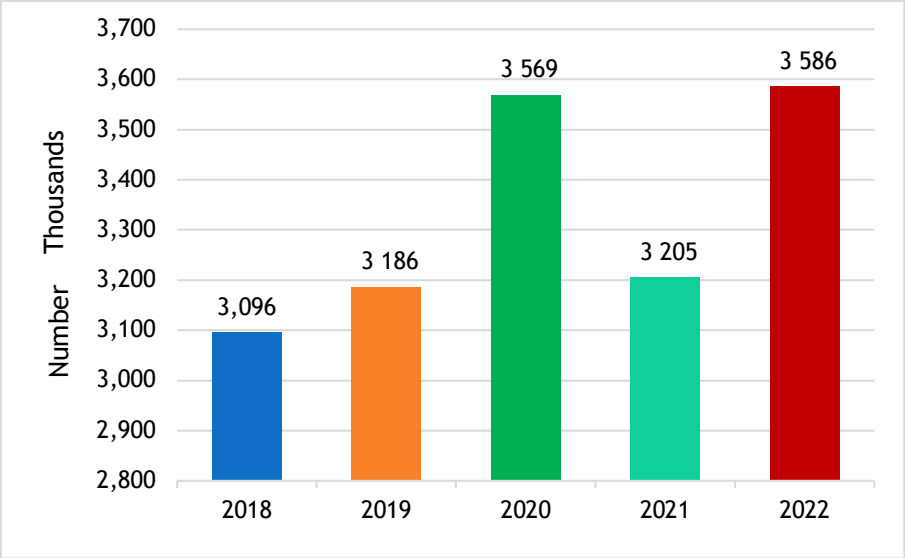
The age group of greatest concern is 16–30 years. The country's future success depends on its youth, progress, and development. The LFPR is below the national average due to people in this age bracket in studies. The LFPR was at its lowest (46,1%) in 2021 due to the COVID–19 pandemic.

3.5 EMPLOYMENT

Employment: Most people in the labour market are involved in subsistence agriculture. However, they are excluded from the employment count. Thus, lower labour force participation rates and employment levels reflect subsistence (own use) farmers (1 500 029).[31]

[31] NISR (2022) *Labour Force Survey trends - February 2019 (Q1)*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

Exhibit 19: Total employment in numbers (Q1 2018–Q1 2022)



Source: NISR LFS 2018, 2019, 2020, 2021, 2022

The highest number of employed persons was 3 585 651 in Q1:2022, showing an economic rebound. A massive classroom building programme occurred in 2020 during school closures which increased employment.

Employment by economic activity: The distribution of the employed population by economic activity shows the density and change of employment.

Exhibit 20: Percentage of employment shares by economic activity (2018–2022)

Branch Economic Activity	2018	2019	2020	2021	2022	% change (2021-22)
Agriculture, forestry and fishing	42.3	39.8	43.9	52.3	52.5	0.2
Mining and quarrying	1.8	3.1	1.9	1.0	0.8	–0.2
Manufacturing	6.2	6.4	5.5	4.5	4.4	–0.1
Electricity, gas, steam and air conditioning supply	0.3	0.2	0.3	0.2	0.1	–0.1
Water supply, gas, remediation services	0.3	0.2	0.3	0.1	0.1	0
Construction	9.0	9.2	8.7	8.8	9.2	1.4
Wholesale, retail, repair vehicles, motorcycles	14.4	14.4	11.9	10.5	10.1	–0.3
Transportation and storage	3.8	4.9	4.4	4.1	4.7	0.6
Accommodation and food service activities	1.8	2.4	3.3	1.7	1.7	0
Information and communication	0.5	0.2	0.2	0.4	0.3	–0.1
Financial and insurance activities	0.7	1.2	1.2	1.1	0.8	0.7
Real estate activities	0.1	0.1	0.1	0.1	0.0	–0.1
Professional, scientific and technical activities	0.6	0.6	0.7	0.5	0.7	0.2
Administrative and support service activities	1.5	1.7	2.0	1.8	1.2	–0.6

Branch Economic Activity	2018	2019	2020	2021	2022	% change (2021-22)
Public administration; defence; social security	1.9	1.8	2.0	1.9	1.7	–0.2
Education	3.5	3.4	3.6	3.0	3.8	0.8
Human health and social work activities	1.6	1.4	1.9	1.3	1.3	0
Arts, entertainment and recreation	0.3	0.3	0.4	0.1	0.3	0.2
Other service activities	1.9	2.5	2.7	2.8	2.9	0.1
Activities of households as employers	6.8	5.9	5.1	4.1	3.7	–0.6
Activities of extraterritorial organisations/bodies	0.6	0.4	0.2	0.1	0.1	0

Source: NISR LFS 2018, 2020, 2022

There is a marginal increase in employment shares for agriculture, forestry and fishing (0.2%), construction (1.4%), transportation and storage (0.6%), finance and insurance (0.7%) and education (0.8%). These sectors were relatively less affected by the COVID–19 pandemic than other sectors, which showed declines.

Significantly, manufacturing, wholesale, retail trade, mining and quarrying declined between 2018 and 2022 on the back of the pandemic.

Employment change: Employment changes over a period. The exhibit shows the number of persons employed per category of economic activity and the percentage change between 2018 and 2022.

Exhibit 21: Change in employed numbers by economic activity (Q1 2021–Q1 2022)

LFS Rounds	2021	2022	Change 2021–2022
Economic Activities			
Agriculture. forestry. and fishing	1 676 302	1 881 040	204 738
Mining and quarrying	30 378	27 353	(3 025)
Manufacturing	143 238	158 469	15 231
Electricity, gas, steam and air conditioning supply	6 766	4 318	(2448)
Water supply sewerage and waste management	2 228	5 191	2 963
Construction	280 565	328 658	48 093
Wholesale, retail trade repair of motor vehicles	336 170	360 222	24 052
Transportation and storage	131 658	166 739	35 081
Accommodation and food service activities	53 060	59 181	6 121
Information and communication	11 940	9 905	(2 035)
Financial and insurance activities	33 661	29 714	(3 947)
Real estate activities	1 927	1472	(455)
Professional scientific and technical activities	14 682	25 109	10 427
Administrative and support service activities	56 409	41 692	(14 717)
Public administration and defence	61 110	59 168	(1 942)
Education	97 050	134 330	37 280

LFS Rounds	2021	2022	Change 2021–2022
Human health and social work activities	42 620	46 600	3 980
Arts, entertainment and recreation	3 678	8 852	5 174
Other service activities	89 021	103 002	13 981
Activities of households as employers	129 811	130 875	1 064
Activities of extraterritorial organizations and bodies	2 648	3 760	1 112
Total	**3 204 922**	**3 585 650**	**380 728**

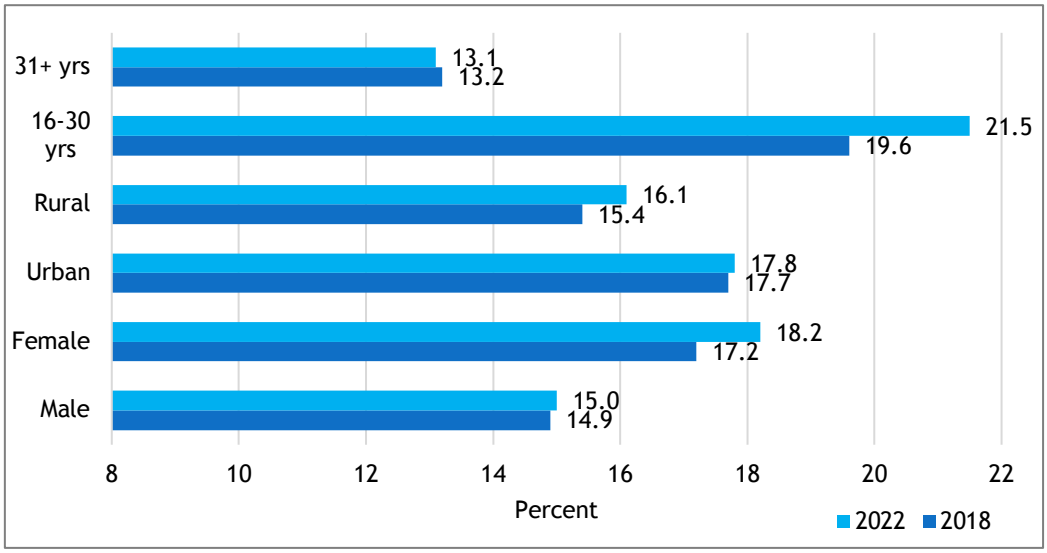
Source: NISR LFS 2018 2022

Significant employment gains were recorded for agriculture transport, storage construction, and education between 2021 and 2022. Overall employment grew by 380 728 jobs. Although job losses occurred in some sectors, they were not severe except for administrative and support services. Counter–cyclical measures during difficult times can increase employment, as in the case of construction where a classroom building programme was initiated.

3.6 UNEMPLOYMENT

The unemployment rate is a significant labour market indicator. It allows the government to take measures to address unemployment opportunities and skills training.

Exhibit 22: Unemployment by gender, residence and age group (2018–2022)

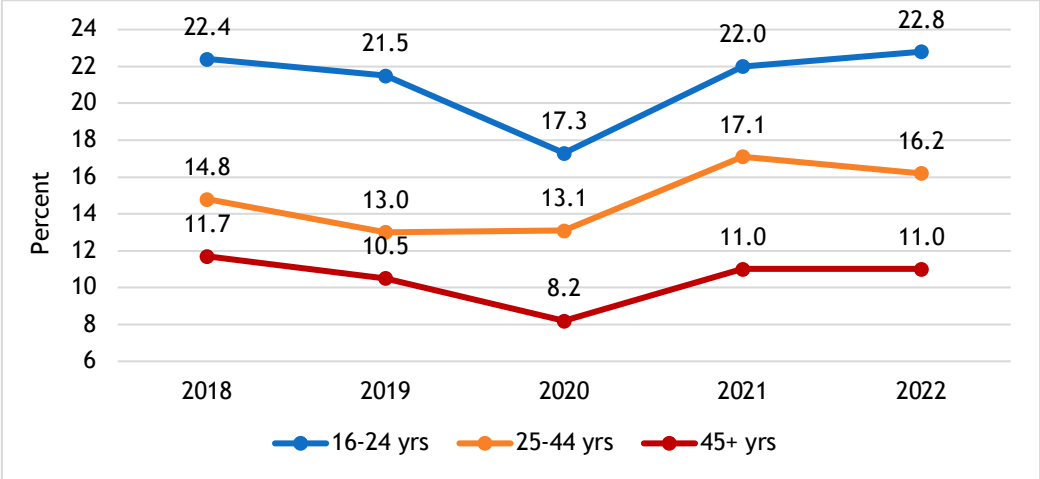


Source: NISR LFS 2019 2022

The above exhibit displays the unemployment rate in Rwanda between Q1 2018 and 2022 by gender residence (urban or rural) and age groups (youth aged 16–30 years old and adults aged 31+). There is an increase in unemployment in all categories, except for the 31+ age group with a marginal decrease of 01%. The unemployment rate has increased by 01% in males, 10% in females, 01% in urban dwellers, and 07% in rural dwellers. The most significant decrease of 19% was observed for youth.

Unemployment by age group: The average unemployment rate in the 16–24 years is the highest between 2018 to 2022, although most are studying. Increases in the unemployment rate for the 24–44 years and +45 years in 2020–2021 are due to the pandemic.

Exhibit 23: Unemployment by selected age groups (2018–2022)



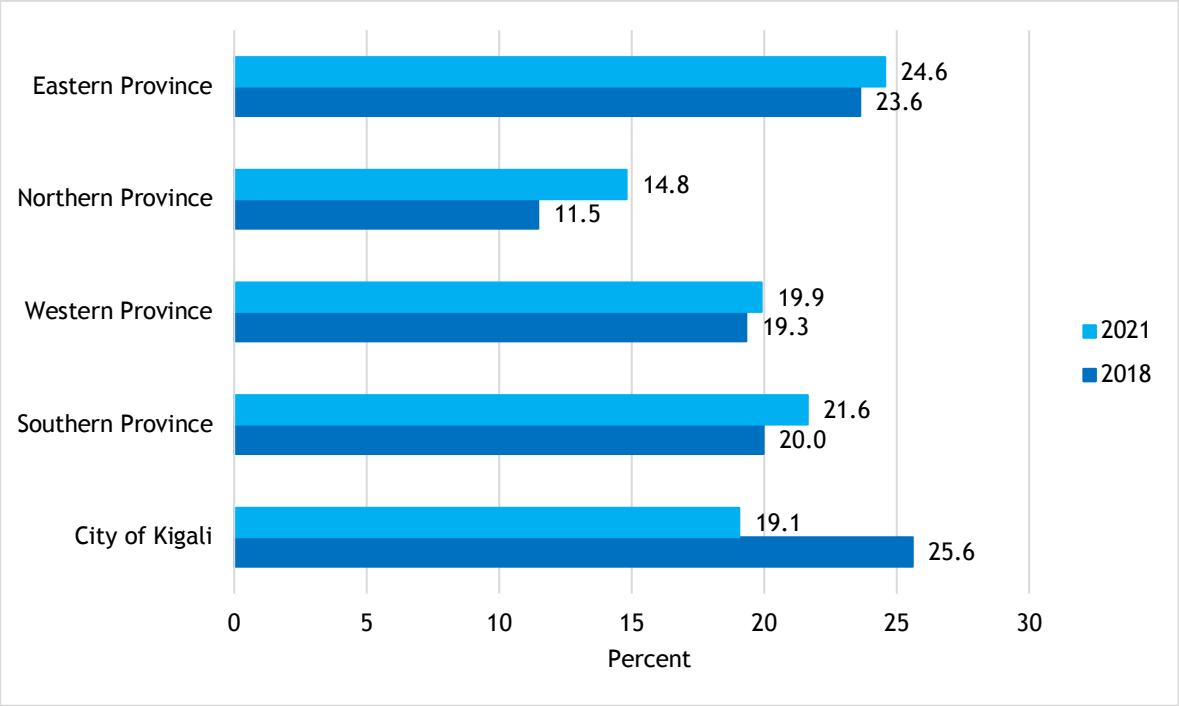
Source: NISR LFS 2019 2022

The unemployment rate decreased from 14.8% to 13.1% by 2020 in the 25–44 years category. It then increased to 17.1% in 2021 before decreasing to 16.2% in 2022. The peak unemployment in 2021 was due to the lockdown in 2020 and the consequent job losses.

The decrease in 2022 is due to the strengthening economy. The average unemployment rate for the 45+ age group was lowest throughout the 2018 to 2022 period, which remained steady at 11% in 2021 and 2022. It means that employees in this age group retained their jobs during the pandemic.

Regional unemployment: This exhibit shows the unemployment rate per region between 2018 and 2021.

Exhibit 24: Unemployment by region (2018–2022)



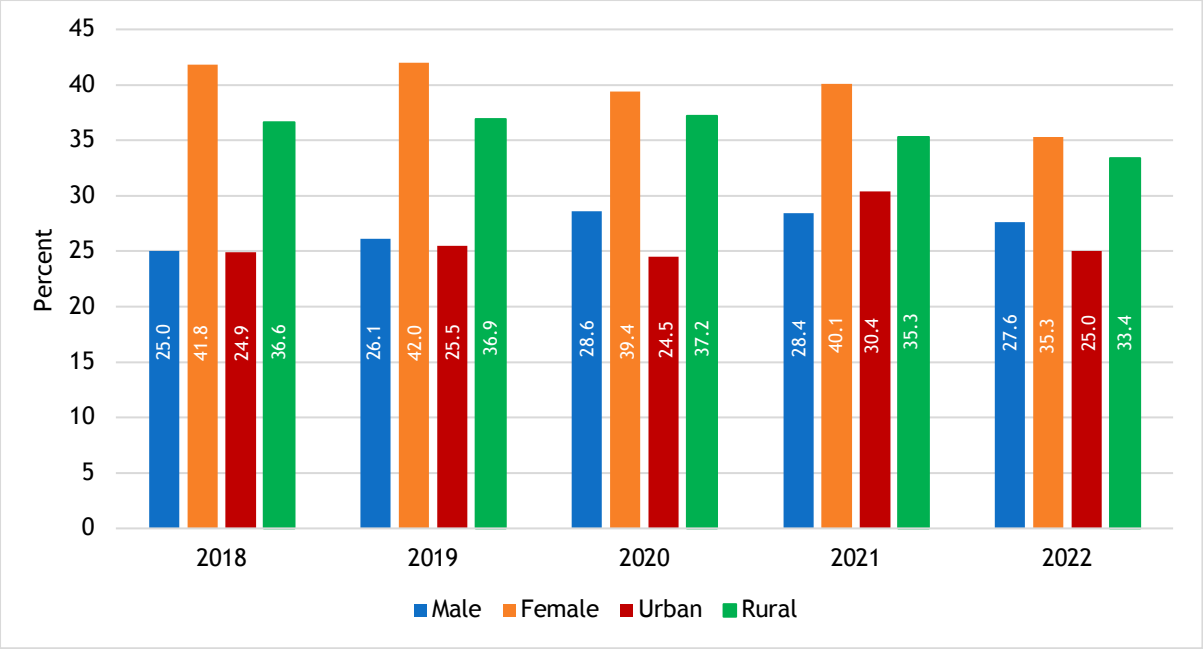
Source: NISR Annual LFS 2018 2021

The unemployment rate was 25.6% in Kigali in 2018. It dropped to 19.1% in 2021. Unemployment increased in the provinces. The unemployment rate was highest in the Eastern Province (24.6%). The most significant increase was in the Northern Province, from 11.5% in 2018 to 14.8% by 2021.

3.7 NEET AND YOUTH

The exhibit demonstrates the share of those youth (aged 16–30 years) not in employment education or training (NEET).

Exhibit 25: NEET youth (16–30 years old) gender and residence (2018–2022)



Source: NISR LFS 2019 2022

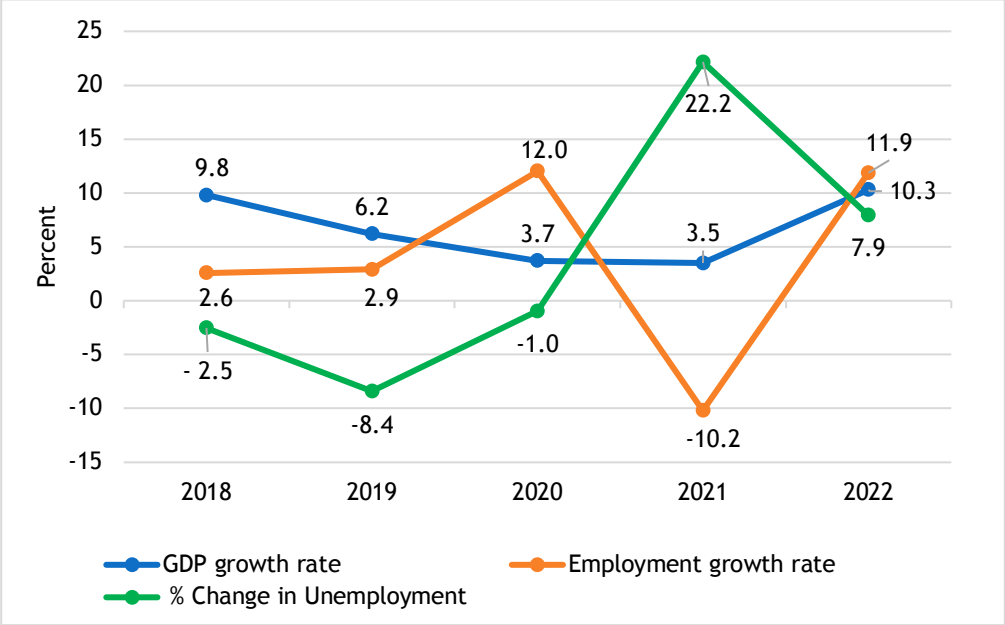
There were 1 104 194 NEETs in Q1:2022. It is 30% of the 15–29 years considering there are 3 653 656 persons in this age category.[32] Almost one–third of youth are NEET. Rwanda has a youth unemployment problem that will escalate if not addressed.

The share of NEET youth in rural areas was higher than that of urban youth. It is due mainly to the lack of economic activities.

[32] NISR (2022) *Labour Force Survey trends - February 2022 Q1*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

GDP unemployment and employment: The exhibit shows the relationship between GDP unemployment and employment between 2018–2022.

Exhibit 26: GDP & employment and unemployment (2010–2022)



Source: NISR 2021 (Gross Domestic Product – Q4 2021) NISR 2018 2019 2020 2021 2022

The GDP growth rate followed a downward trend from 2018 to 2021, with values of 9.8% in 2018, 6.2% in 2019, 3.7% in 2020, and 3.5% by 2021. There was a significant recovery in 2022 when the growth rate climbed to 10.3% by the final quarter of 2021.

Employment increased from 2.6% in 2018 by 0.3% by 2019 (2.9%). It peaked at 12% in 2020 and declined in 2021 to –10.2% due to COVID–19. By 2021, employment increased to 11.9% 2022.

3.8 MIGRANT LABOUR

Migrant employment characteristics: The exhibit below depicts the change in migrant employees between 2018 and 2022.

Exhibit 27: Migrant employment by economic activity (2018–2022)

Branch Of Economic Activity	2018	2022	% Change
Agriculture, forestry, and fishing	7 405	8 389	13.3
Manufacturing	293	673	129.7
Mining and quarrying	1 876	2 396	27.7
Electricity, gas, steam, and air conditioning supply	60	181	201.7
Water supply, gas, and remediation services	–	–	–
Construction	1 960	4 389	123.9
Wholesale, retail, trade, and vehicle repair	8 896	2 943	–66.9
Transportation and storage	1 357	2 039	50.3
Accommodation and food services	1 288	153	–88.1
Information and communication	230	75	–67.4
Financial and insurance activities	158	141	–10.8
Real estate activities	208	–	–
Professional, scientific, and technical activities	652	707	8.4
Administrative and support activities	517	265	–48.7
Public administration and defence, compulsory	821	1 412	72.0
Education	2 574	765	–70.3
Human health and social work activities	3 671	352	–90.4
Arts, entertainment and recreation	323	109	–66.3
Other services	1 153	333	–71.1
Activities of households as employers	2 904	527	–81.9
Activities of extraterritorial organisations	1 029	122	–88.1
Total migrant workers (employed migrants)	**37 374**	**25 969**	**–30.5**

Source: NISR LFS

Due to base effects, the highest percentage change in migrant employees (201,7%) occurred in the “Electricity, gas, steam and air conditioning supply” category. The second and third highest percentage changes were in the manufacturing and construction sectors, with 129,7% and 123,9% changes due to base effects.

The most migrant employees were in agriculture, forestry, and fishing (8 389 migrants). Migrants are primarily from other African countries, where skills in agriculture, forestry and fishing are developed. Many rely on these activities to make a living. It is low–skilled and informal and therefore favourable for migrants.

Overall, 11 405 migrant employees were lost across all activities between 2018 and 2022. Rwanda has a robust migration policy regime to encourage highly skilled migrants to work in sectors such as ICT, education, agricultural research, development, built environment, energy, health, mining, and tourism.

The *Law on Investment Promotion and Trade Facilitation* mentions under immigration incentives (IX) the following:[33]

- Registered investors and their dependants shall be issued a residence permit per relevant laws.
- A registered investor who invests an equivalent of at least two hundred fifty thousand United States Dollars (USD 250,000) may recruit three (3) foreign employees, without necessarily demonstrating that their skills are lacking or insufficient in the labour market in Rwanda.

3.9 CONCLUSION

Decent Work: 1 882 466 commercial agricultural workers compared to 1 703 185 non–agricultural workers. Research also indicates that total factor productivity in agriculture is low, leading to lower yields. Since agriculture is a major contributor to GDP and employment, it should be strengthened. Commercial agricultural workers are vulnerable to poor wages/income, indecent working conditions, and exploitation. Therefore, Rwanda's goal of transitioning to upper–middle– and high–income status necessitates addressing the plight of agricultural workers. It requires progressively implementing a Decent Work Programme to improve agricultural workers' conditions. *Skills training for adopting Decent Work practices should be initiated for commercial agriculture and where indecent work conditions exist. The RDB should engage with the custodians of the Rwanda Decent Work Programme to support skills training. Commercial farms should be encouraged to invest in staff skills training to improve productivity.*

Youth Unemployment/NEET/Skills Training: Rwanda is a youthful nation with 15–29 years comprising 28,2% of the population. There were 1 104 194 NEETs in Q1:2022. It is 30% of the 15–29 years considering there are 3 653 656 persons in this age category. Almost one–third of youth are NEET. The youth bulge is both a challenge and a demographic dividend, depending on how it is addressed.

Youth Employment: There is a need to tackle youth unemployment, which consists of graduate and non–graduate (generally NEETs) unemployment. Concerning graduate unemployment, a common criticism by employers is that graduates are not work ready to enter the workplace. There is a mismatch between the expectations of graduates and employers. Several active labour market activation measures have

[33] N° 06/2015 of 28/03/2015. Law relating to investment promotion and facilitation

been tried and tested elsewhere and have succeeded. For example, the following measures are recommended:

Apprenticeship scheme: *The key trades should introduce a statutory apprenticeship scheme. The scheme should be legislated with minimum apprenticeship wage rates and working conditions based on individual trades. The scheme should involve 75% on–the–job training and 25% theory culminating in a trade test and artisan status. Employers indenturing apprenticeships should be supported with a subsidy or given tax breaks to offset costs.*

Traineeship scheme: *A traineeship scheme should be introduced for the services sector occupations (non–trades). The scheme should be formally established with practical and theory components. The traineeship curriculum would depend on the occupation pursued. Employers hosting trainees should be supported with a subsidy or given tax breaks to offset costs.*

Internship Scheme: *TVET and university graduates should establish an internship scheme to obtain work experience. Employers hosting trainees should be incentivised through a subsidy or tax breaks.*

Employment Tax Incentive: *Targeted wage subsidies should be introduced to incentivise employers to employ youth. Registered employers are eligible to participate in ETI. They are given a wage subsidy via a payroll tax for employing youth based on threshold limits. It is a cost–sharing mechanism between the employer and government and supports a Decent Work Agenda.*

TVET and Higher Education: If Rwanda is to achieve upper–income country status, significant improvements must be made to improve education levels. The upper secondary graduates should be improved from 8.5%. Likewise, the number of people with higher education qualifications should be increased to enable the economy to upgrade and develop higher–value–added goods and tradable services. *Access and student enrolments in upper secondary and higher education increased. Education institutions can increase enrolments with online and blended delivery methods. There should be a bias towards STEM programmes and occupations to meet labour market demand in scarce occupations.*

There are more males than females employed with a difference of 8.8% in favour of the former. Similarly, there are differences in education levels by gender in university and upper secondary. Males consist of 61,9% compared to 38,1% of females in university. In upper secondary, there are 56.5% males and 43.1% females. *TVET institutions and universities should address gender disparities in education and training access. There should be performance targets for education institutions to meet regarding gender enrolments and staffing.*

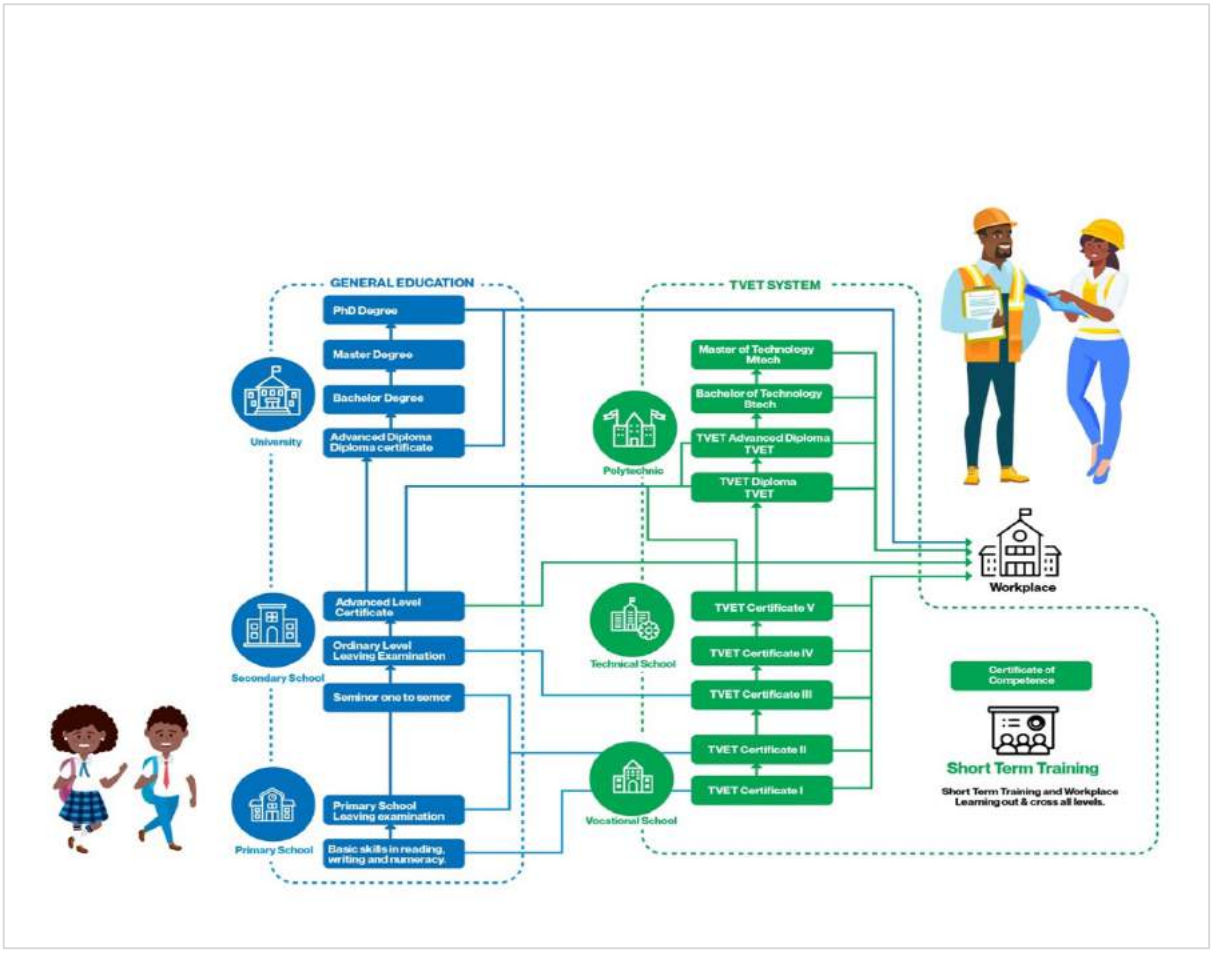
Rwanda has a robust migration policy regime to encourage highly skilled migrants to work in sectors such as ICT, education, agricultural research, development, built environment, energy, health, mining, and tourism. *Measures should be enacted for skilled migrants and foreign firms to use technology and skills transfer.*

SECTION FOUR: SKILLS SUPPLY

4.1 EDUCATION STRUCTURE

Rwanda TVET Mobility and Pathways

Exhibit 28: Rwanda's education structure



Source: Rwanda TVET Board

4.2 ENROLMENTS

4.2.1 Total Enrolments

The distribution from pre–nursery to higher education in the education and training system:

Exhibit 29: Total enrolments and distribution (2019–2020)

Levels	2019	2020–2021		
	Students	Students	Staff	Institutions
Pre–Nursery	6 690	3 198	501	103
Nursery	282 428	293 823	9 312	3 741
Primary	2 512 465	2 729 116	63 580	3 691
General secondary	639 627	682 904	30 095	1 853
TTC	9 320	10 721	471	16
TVET L1–L5	83 157	89 221	5 720	344
TVET short courses	9 932	8 561	0	0
Polytechnics	14 078	13 172	1 499	8
General higher education	72 128	75 276	4 566	30
Adult Literacy	127 117	127 054	5 902	4 953
Total	**3 756 942**	**4 033 046**	**121 646**	**14 739**

Source: Education Statistical Yearbook 2020–2021

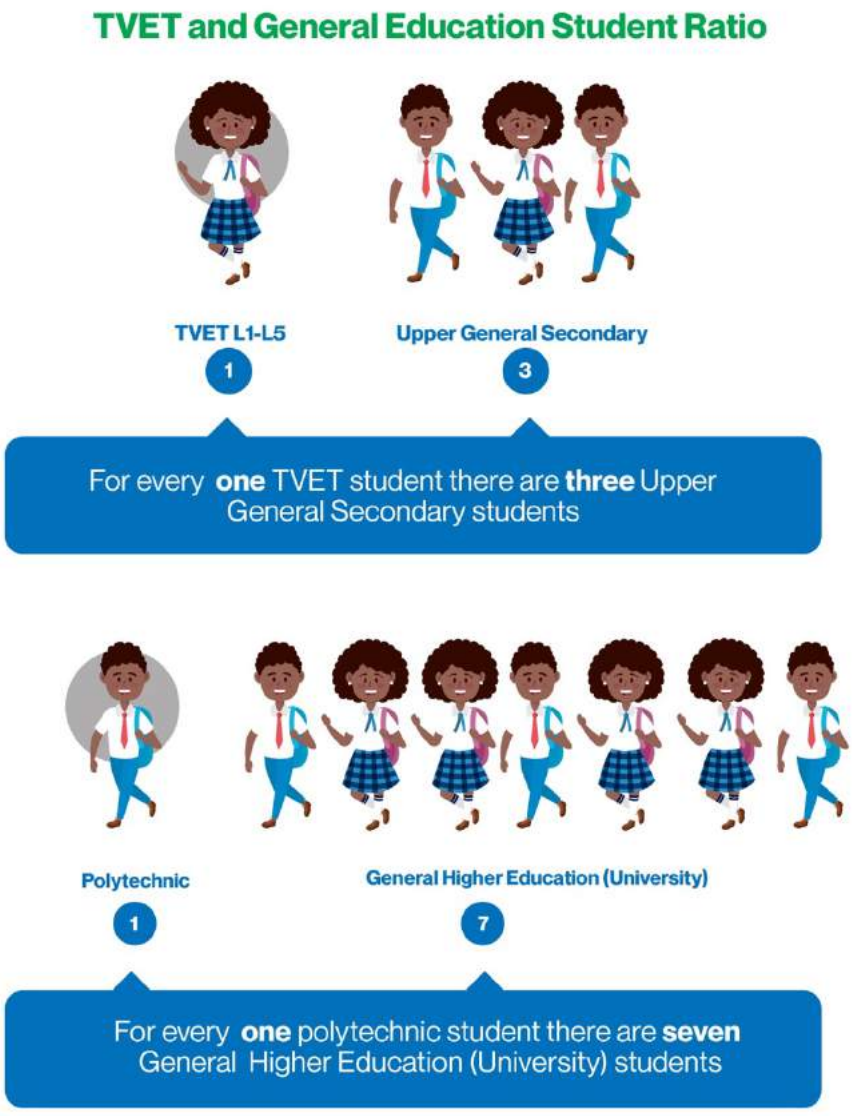
- There were 4 033 046 learner/students in the system in 14 739 institutions with 121 646 educators.
- There was a learner/student increase of 11 396 in nursery schools, 216 651 primary schools, 43 277 general secondary schools, 6 064 TVET L1–5, and 3 148 in general higher education year–on–year (y–y).
- The higher enrolments in primary and secondary schooling are likely to be learners who are returning to schools after the COVID–19 crisis.
- Approximately 75% of learners are in primary schools and below, 16.9% in secondary schools and TVET L1–L5, 0.32% in polytechnics and 1.86% in higher education.
- Primary school staff: learner ratio is 1:42.9, which should be reduced to improve teaching and learning quality.
- The staff: student ratio in TVET L1–L5 is 1:15.6, within an acceptable range.

Rwanda has improved the quality and coverage of primary and secondary education. It has implemented a national meal programme, a competency–based curriculum, and a construction drive to build more schools and classrooms. Policies were formulated to ensure universal and equitable access to 12 years of education for all children. Since 2016, Rwanda has recorded net enrolment rates above 97.5%.[34]

4.2.2 Enrolment Ratio

The General Education–TVET ratio in secondary and higher education:

Exhibit 30: General education–TVET ratios



Source: Education Statistical Yearbook 2020–2021

[34] NISR (2018) Education Statistics Report.

- The enrolment ratio of general upper secondary (244 680) to TVET L1–L5 (72 686) is 1:3.3. It is a healthy ratio, and therefore the challenge is to improve TVET quality and graduate outcomes.

- The enrolment ratio of general higher education (88 448) to polytechnics (13 172) is 6.71:1. Ideally, the polytechnic enrolment numbers should be increased relative to general higher education. Likewise, the challenge is improving this band's quality and graduate outcomes.

- Rwanda's economic structure requires higher student enrolments in TVET L1–L5 and polytechnics to provide graduates with occupational competencies and improve college–to–work transition rates.

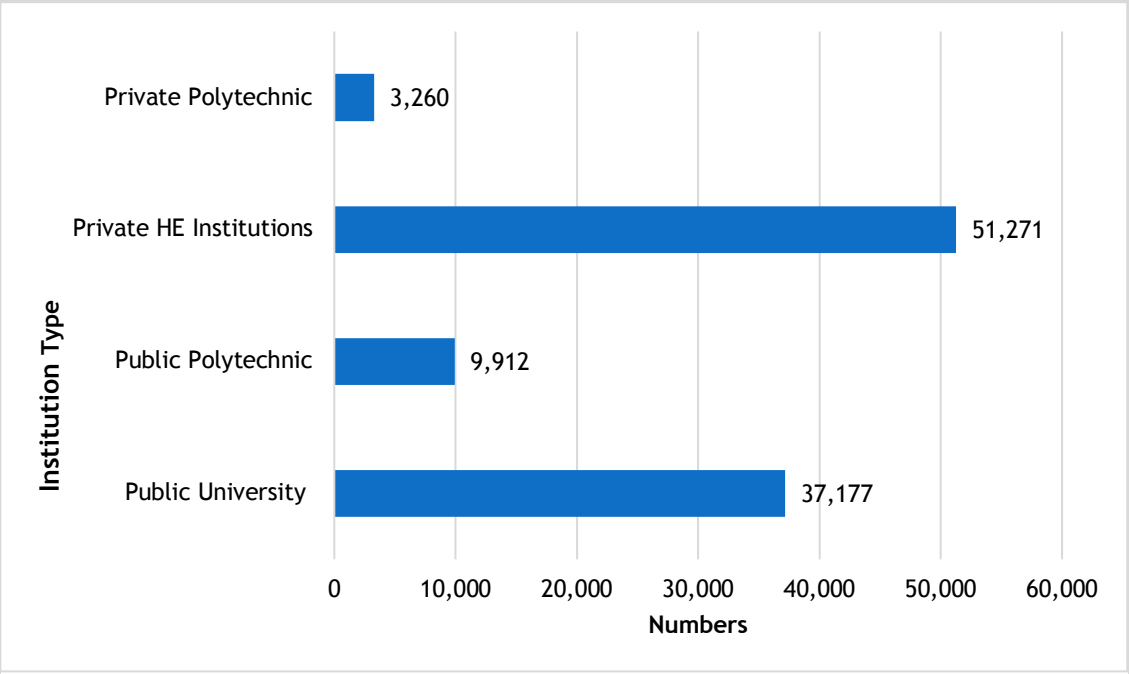
- Increasing TVET enrolments will require additional human and material resources to expand and upgrade institutions.

There is a dual challenge of increasing student enrolments and graduate rates, on the one hand, and improving quality, on the other. Quality is more covert but is not directly observable or displayed in statistics. The perception of quality differs from one individual or institution to the next. From stakeholder consultations, it is apparent that the quality of graduates should be improved for better labour market outcomes. There is a concern that education institutions that offer similar or the same qualifications differ widely in terms of quality outputs.

4.2.3 Higher Education Public and Private Enrolments

The differences in public and private higher education:

Exhibit 31: Student enrolments in private and public universities and polytechnics (2020–2021)



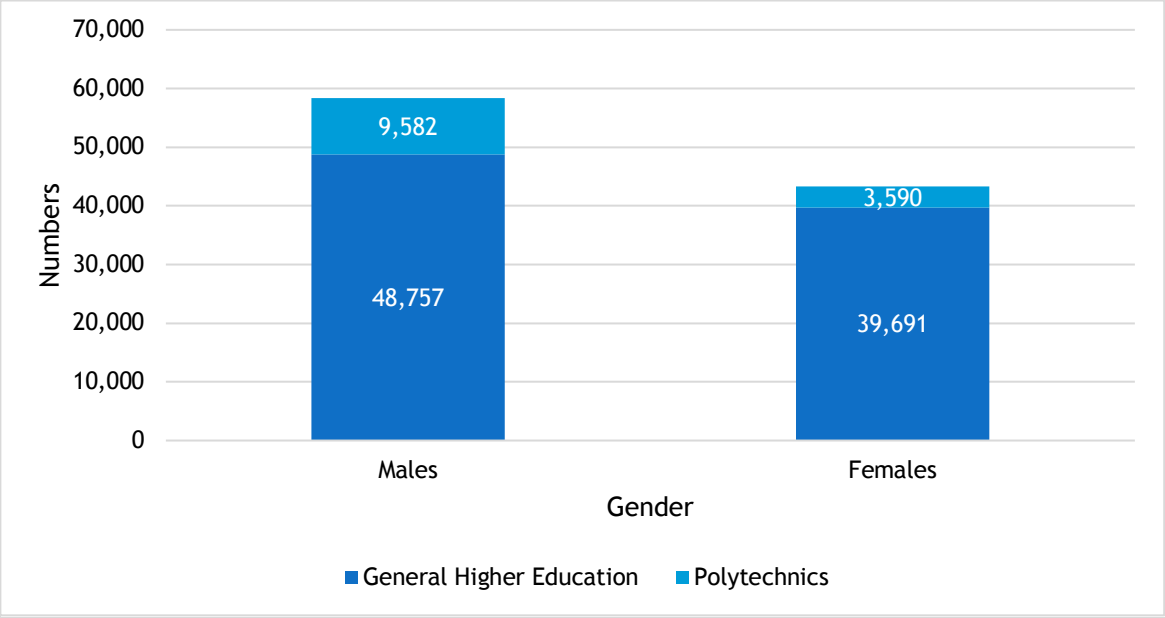
Source: Education Statistical Yearbook 2020–2021

- There are 42% more students in private HE institutions than in public universities, while 9.75% of students are in public polytechnics.
- The TVET expansion requires private investments, including FDI in private polytechnics, to steer the system to creating a better–skilled workforce.

4.2.4 Higher Education Gender Enrolment

The male–female breakdown in higher education:

Exhibit 32: Gender in private and public universities and polytechnics (2020–2021)



Source: Education Statistical Yearbook 2020–2021

- There are 55.1% of males and 44.9% of females in public and general higher education institutions, 72.7% of males and 27.3% of females in polytechnics.
- These figures indicate a need to increase female enrolments, especially in the polytechnics.

4.2.5 Adult Literacy Rate

Rwanda's literacy rate has improved from 38.24% in 1978 to 73.22 in 2018. It represents a 91.47% improvement over the period. The remaining challenge is to improve the rate into the 90% bracket.

4.2.6 Digital Literacy

Rwanda aspires to become a leading ICT Hub in Africa. Digitalisation is a priority area for economic growth, and digital literacy is an essential skill for individual development. Digital literacy reached 20% in 2019. NST1 targets a 60% adult digital literacy rate of 100% for youth by 2024.[35]

Digital Ambassadors Programme (DAP) is an initiative led by the Rwandan Ministry of ICT and Innovation (MINICT) to the number of digitally literate citizens and their use of e–Government and e–Business services. Other programmes include electronic financial transactions, ICT in Governance, ICT in Education, ICT in Health, ICT Agriculture, and ICT in Innovation.

4.2.7 Enrolment By Learning Areas

Enrolments in upper secondary by learning areas:

Exhibit 33: Upper secondary students per learning area and grade in (2020–2021)

Grade	Leaning area					Total
	Science	Humanities	Languages	TTC	TVET	
S4/Y1/L3	33 499	13 854	13 731	4 402	30 692	96 178
S5/Y2/L4	30 267	11 402	10 402	3 249	20 666	75 986
S6/Y3/L5	28 639	9 921	9 558	3 070	21 328	72 516

Source: Education Statistical Yearbook 2020–202

The breakdown by learning areas is science (37.8%), humanities (14.4%), languages (13.8%), teacher training (44%), and TVET (29.7%).

[35] MINICT (2019) Rwanda ICT Sector Profile.

4.2.8 TVET Enrolments

TVET Enrolments from levels 1 to 7:

Exhibit 34: TVET level enrolments (2020–2021)

TVET Level Enrolments	2017	2020/21
Level 1	11 274	16 075
Level 2	2 077	460
Level 3	24 603	30 692
Level 4	19 846	20 666
Level 5	21 795	21 328
Level 6	529	1285
Level 7	9 891	11 887

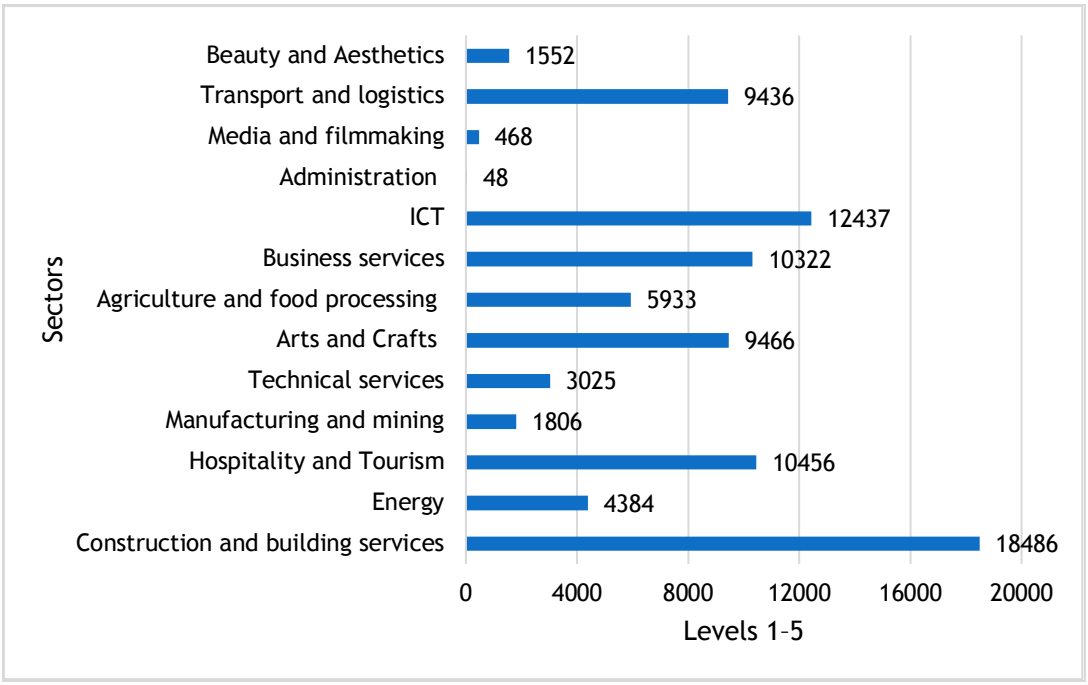
Source: Education Statistical Yearbook 2020–2021

- There is a 13.75% increase in TVET enrolments between 2017 and 2020/21.
- There were increases at all levels except Level 2.

4.2.9 Enrolments By Sector

TVET enrolments by sector from Levels 1–5:

Exhibit 35: TVET enrolments by sector (2020–2021)



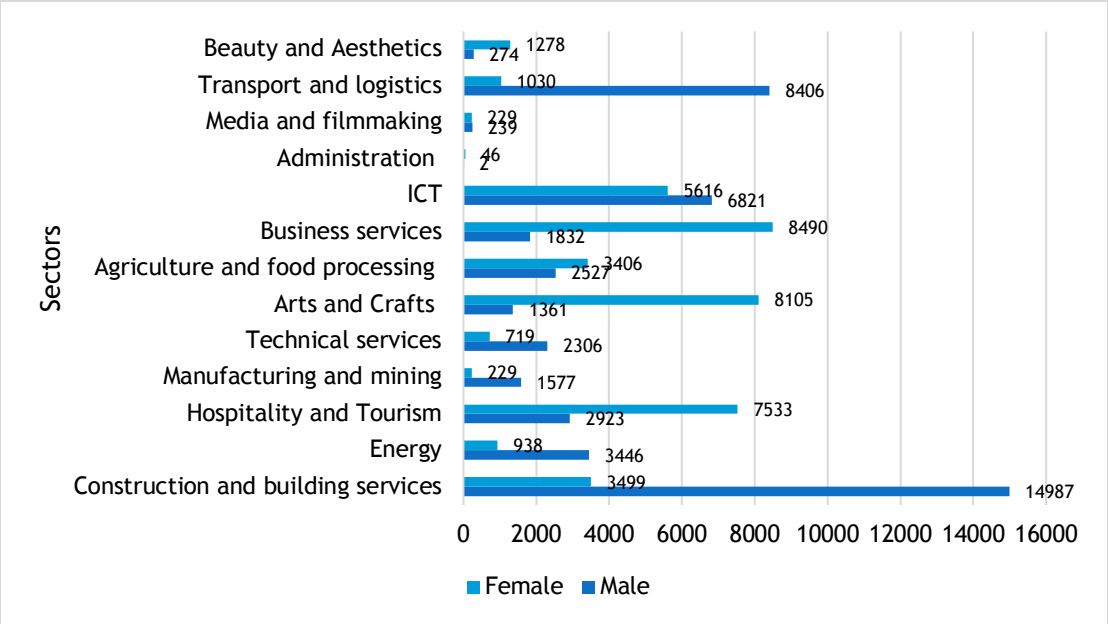
Source: Rwanda TVET Board

- The sectors with high enrolments are construction and building services, ICT, hospitality and tourism, business services, arts and crafts, and transport and logistics.

4.2.10 Enrolments By Gender

TVET enrolments by gender from Levels 1–5:

Exhibit 36: TVET enrolments by sector and gender (2020–2021)



Source: Rwanda TVET Board

- The highest male densities are found in construction and building services, ICT and transport and logistics, while females are prominent in hospitality, arts and crafts, business services and ICT.

4.2.11 TVET Enrolment By Trades

Enrolment by specific trades:

Exhibit 37: TVET enrolment by trades (2020–2021)

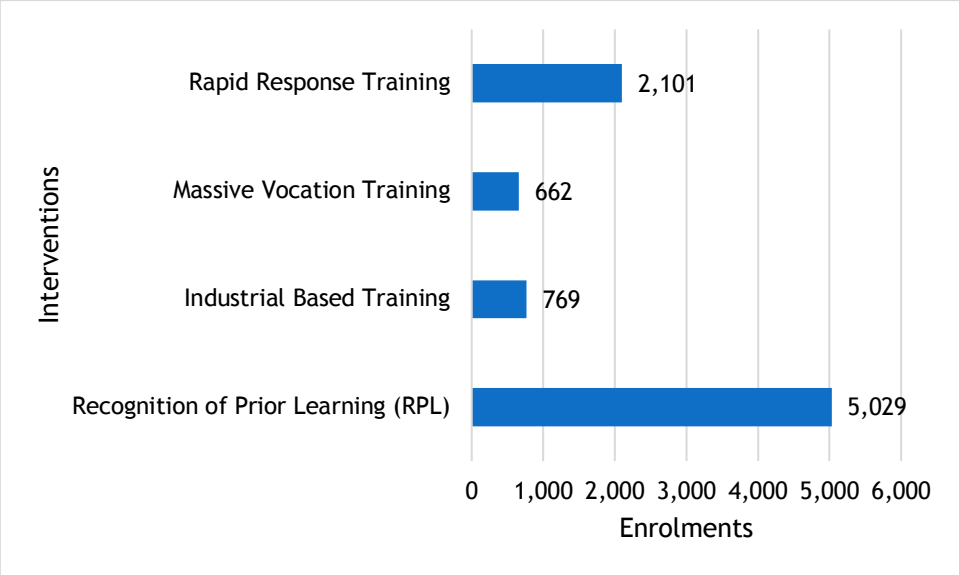
Sector and Trades	Level 1 – 5	Sector and Trades	Level 1 – 5
Construction and building services	**18486**	**Business services**	**10322**
Road Construction	927	Accounting	9787
Carpentry	1781	Business Services	535
Masonry	14 446	**ICT**	**12437**
Plumbing	788	Software Programming	271
Painting and decoration	76	Computer Systems Technology	2482
Interior design	117	Software development	4134
Land Surveying	351	Networking	2748
Energy	**4384**	Computer Applications	2802
Domestic Electricity	2218	**Administration**	**48**
Industrial electricity	2069	Office Management	48
Hydropower	21	**Media and filmmaking**	**468**
Solar	76	Multimedia	468
Hospitality and Tourism	**10456**	**Transport and logistics**	**9436**
Culinary arts	6050	Driving	214
Food and Beverage Services	205	Heavy machine operations	32
Front office operations	4	Automobile technology	758
Housekeeping	0	Motorcycle Technology	23
Tourism	4197	Automobile Body Works Technology	37
Manufacturing and mining	**1806**	**Automobile Engine Technology**	**3747**
Production Technology	510	Automobile transmission systems technology	3591
Mining	20	Auto electricity and electronic systems technology	1034
Welding	1276	**Beauty and Aesthetics**	**1552**
Technical services	**3025**	Hairdressing	1552
Electronic Services	2615	**Agriculture and food processing**	**5933**
Telecommunication	410	Agri–business	204
Arts and Crafts	**9466**	Bee keeping	0
Bed making	7	Horticulture production	0
Basketry	0	Livestock	0
Embroidery	65	Milk processing	15
Leather works	189	Crop production	1891
Tailoring	8769	Food processing	1137
Graphic Arts	152	Forestry	298
Music	153	Agri–Mechanization	7
Ceramic and Sculpture	131	Irrigation and Drainage	0
		Animal Health	2381

- There are high enrolments in accounting, masonry, computer systems technology, software development, networking, computer applications, culinary, arts, automobile transmission systems, technology and tailoring.

4.2.12 Special TVET Programmes

Special TVET programme enrolments:

Exhibit 38: TVET special programmes (2020–2021)



Source: Rwanda TVET Board

Training activity in TVET special programmes from the Rwanda TVET Board is low. It is a concern because short programmes and RPL are vehicles to upskill employees while they work and are increasingly recognised as a legitimate learning form.

The picture differs from the Rwanda Development Board's capacity development (CD)/trainings (2015–2020). A total number of 45 738 people benefited from 1 248 CD interventions. The public sector had 1 139 interventions that benefited 38 900 beneficiaries; the private sector had 89 interventions benefiting 6 292 beneficiaries, while 20 interventions benefited 546 beneficiaries in civil society organizations.[36] Regarding workplace learning, 9 973 apprenticeships: 19 973 and 10 379 were supported.

[36] RDB (2020) Impact assessment of capacity development interventions among beneficiary institutions from 2014-2019. RDB: Kigali

However, there are challenges facing short course training. The CD budget was reduced from RWF 5 billion to RWF 2.3 billion. Poor coordination, M&E, record keeping, insufficient buy–in from the public and private sectors and unclear roles and responsibilities are the system's challenges.

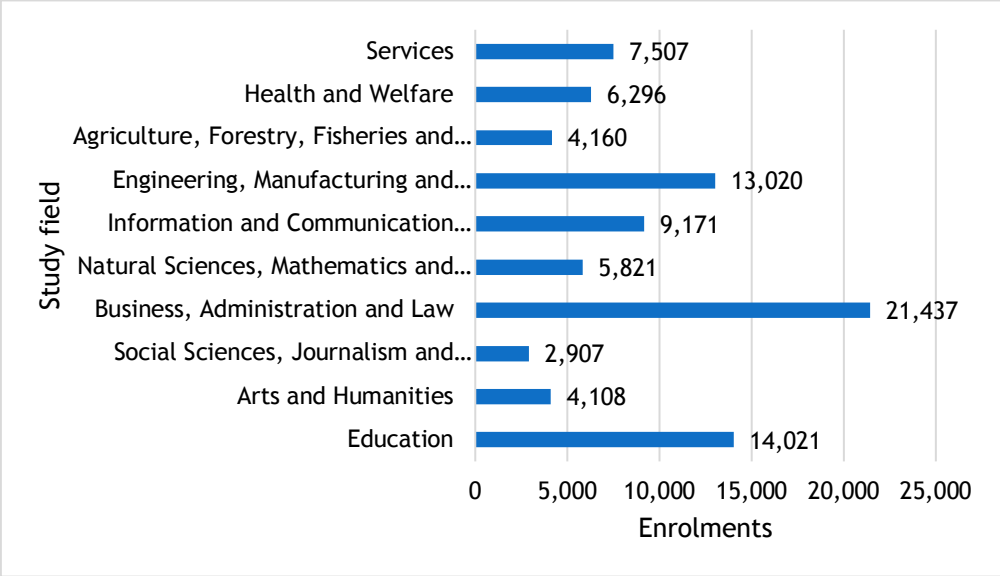
Research conducted by the RDB indicates a need to strengthen the coordination framework with clear roles and responsibilities; revamp the CD platform; relocate the National CD function to the Central Government; better M&E and reporting; joint planning; sector skills assessments; effective CDMIS system; and capacity–building of key role–players.

The challenge is to promote workplace learning among employers and employees. The way to increase worker training is through incentives. A skills levy grant scheme can be introduced whereby employers pay the Revenue Authority a percentage (usually 1–2%) of monthly payroll. The employer can then claim a rebate based on proof of staff training. Another option entitles the employer to claim a tax deduction based on proof of workplace training. There will be a need to stipulate criteria to prevent exploitation of the skills levy grant scheme. Such schemes require feasibility studies because they impact national revenue and should be a joint effort between various state organs.

4.2.13 Higher Education Enrolment By Study Field

Enrolments by field of study:

Exhibit 39: Higher education enrolments by study field (2020–2021)



Source: Education Statistical Yearbook 2020–2021

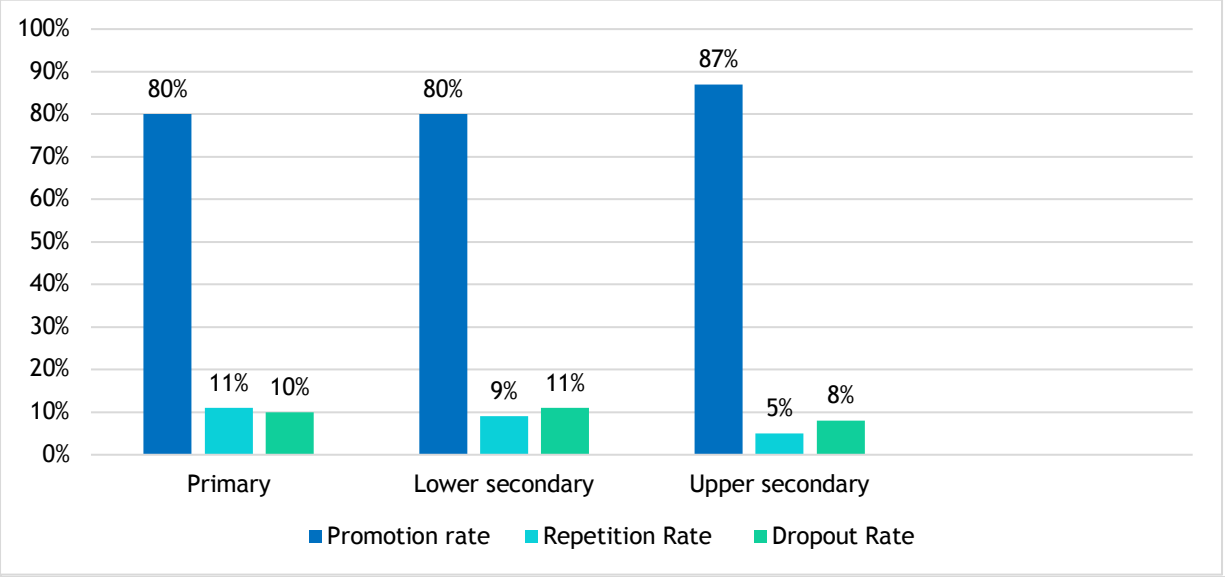
- STEM enrolments represented 41% of higher education enrolments.
- Natural Sciences, Mathematics and Statistics (6.6%), Information and Communication Technologies (10.4%) and Engineering, Manufacturing and Construction (14.7%).
- Business, Administration and Law comprise 24.2% and Arts and Social Sciences 7.9% of total enrolments.
- Most new jobs are created in the STEM fields. Therefore, the number of students in STEM fields should be increased.

4.3 PROMOTION REPETITION AND DROPOUTS

4.3.1 SECONDARY SCHOOLS

Promotion repetition and dropouts are indicators of the efficiency of the system

Exhibit 40: Promotion repetition and dropouts in secondary schools (2020–2021)



Source: Education Statistical Yearbook 2020–2021

With COVID 19, the new challenge is to improve the quality of education by addressing the dropout and repetition among the students and understanding the factors limiting their progression through the system.

The MINEDUC RWANDA and UNICEF full report on *Understanding Dropouts and Repetition* draws the following policy recommendations:[37]

Create inter–ministerial coordination mechanisms: The mechanism will address dropouts and repetitions through multiple lenses since the problem is not confined strictly to educational performance. Issues such as poverty and health are key education outcomes determinants.

Revising school financing: Additional support should be given to address the underlying risks of repetition and dropout. Issues to consider are the historic incidence of repetition or dropout, locality (rural/urban), and income levels.

Re–evaluate the school feeding programme in secondary education: The school feeding programme can impose a financial burden on some children and households.

Strengthen Teacher Recruitment: Programmes to improve teacher recruitment and deployment should be considered.

Review Rules: Standardise the rules governing repetition and tracking attendance, dropout, repetition, and enrolment at the school level.

Develop Scorecard: To identify at–risk children who are likely to repeat a year or drop out.

Develop a Referral Pathway: Children with special education needs.

Implement Targeted Learning Support Programmes for at–risk Children: Introduce a system to identify early–on children at risk of repeating or dropping out.

Deploy Community Education Workers in each Village: Builds on Rwanda's strong solidarity and community cooperation culture to engage young activists to accomplish social change.

Consider Geographically Targeted Interventions for the Urban Poor: A vulnerable group is low–income households in urban areas.

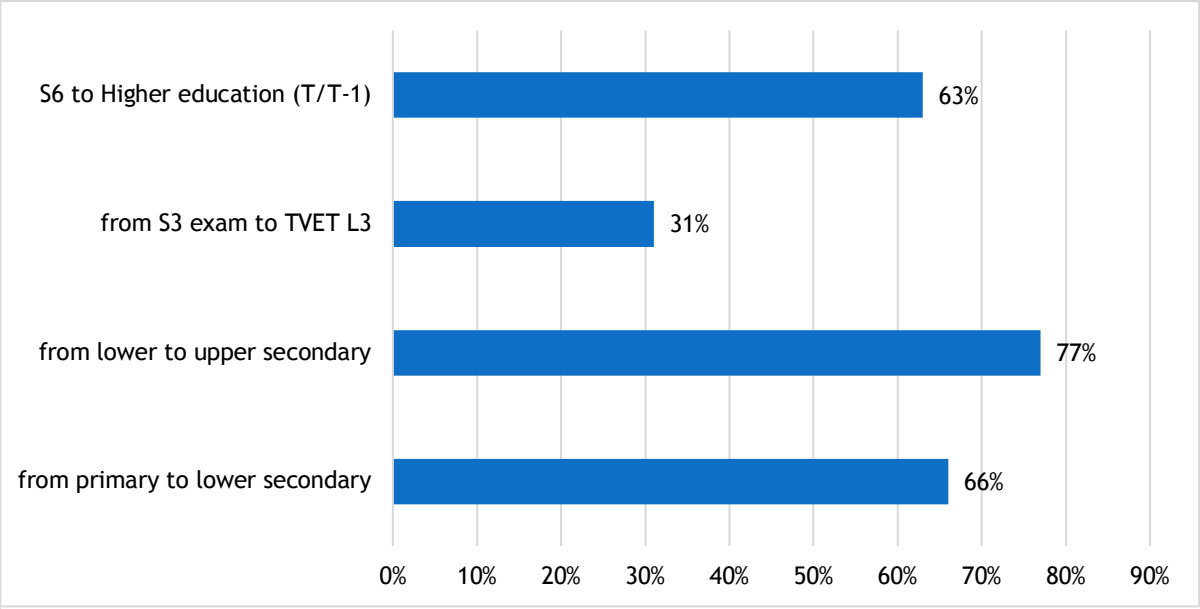
[37] MINEDUC (2017) Understanding Dropouts and Repetition, September: MINEDUC: Kigali.

4.4 TRANSITIONS

4.4.1 Transition Rates

Transition rates are the movement between education phases in the system.

Exhibit 41: Transition rates (2019–2020)



Source: Education Statistical Yearbook 2020–2021

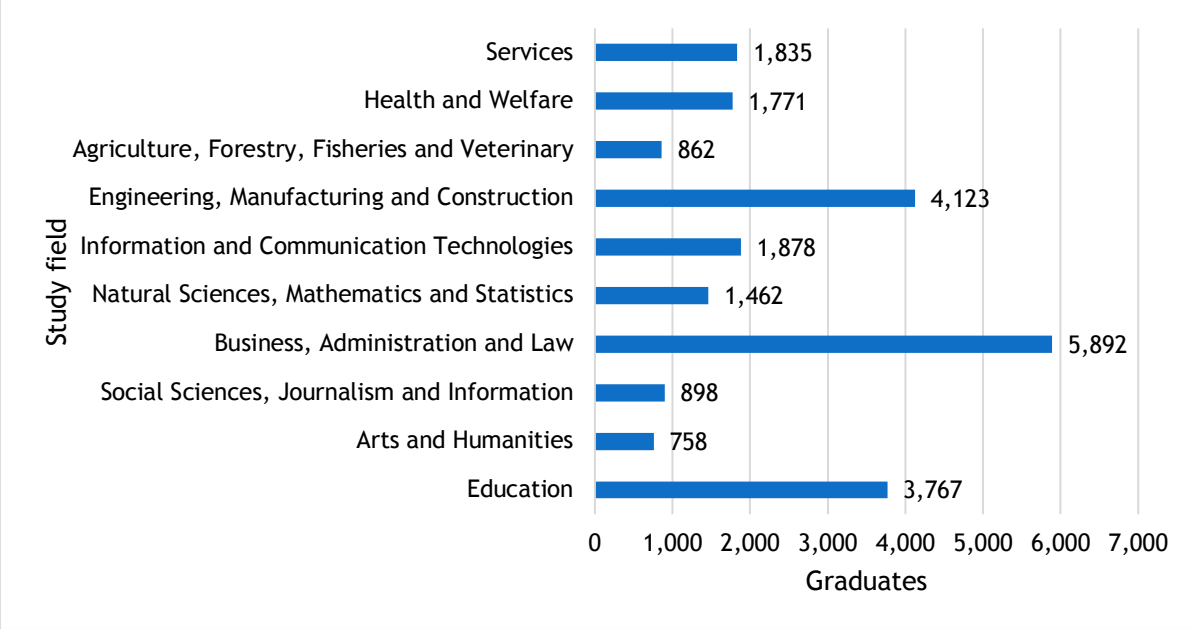
- Transitions in all phases are a concern. The system is losing learners/students through the phases, which indicates inefficiencies.

4.5 GRADUATION

4.5.1 Graduation Rates

Graduate outputs are indicative of success in exiting the system.

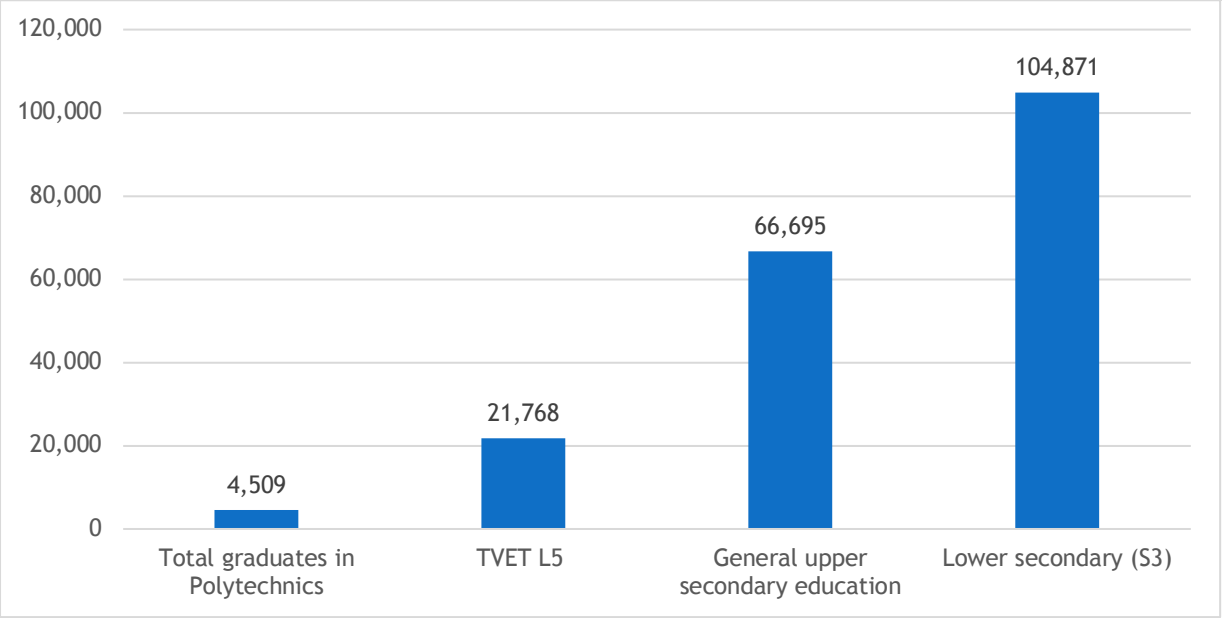
Exhibit 42: Higher education graduates by study field (2020–2021)



Source: Education Statistical Yearbook 2020–2021

- Business administration and law; education and engineering; manufacturing and construction have the highest number of graduates seeking labour market entry. Collectively they comprise 59.2% of all graduates.

Exhibit 43: Graduates by education levels (2019–2020)



Source: Education Statistical Yearbook 2020–2021

- There is a need for higher outputs for polytechnics and TVET L5.

4.6 CONCLUSION

Rwanda's two–tier education and training structure is a highly positive development. It recognises the equivalence and importance of technical vocational education and training by offering programmes in polytechnics in the higher education band.

Primary education is universal, with enrolment rates in the region of 97.5%. The ratio of general upper education to TVET is 1:3.3, which means that one in three learners are in TVET. The ratio for general higher education and polytechnics is 1:6.71, which is good.

The breakdown by learning areas for upper secondary students is science (37.8%), humanities (14.4%), languages (13.8%), teacher training 44% and 29.7% in TVET. There was a 13.75% increase in TVET enrolments between 2017 and 2020/21. The system is steering learners into STEM learning areas.

There are more private higher education institutions than public universities, which lessens the state subsidy subvention to private institutions. However, privatisation presents surveillance challenges to ensure that quality teaching and learning are not compromised. It applies equally to public institutions.

Regarding workplace learning, 45 738 people benefited from 1 248 CD interventions. The public sector had 1 139 interventions that benefited 38 900 beneficiaries; the private sector had 89 interventions benefiting 6 292 beneficiaries, while 20 interventions benefited 546 beneficiaries in civil society organisations.

Notwithstanding, the capacity development budget was reduced from 5 billion to 2.3 billion. The sustainability of the CD system is at risk due to, among others, poor coordination, M&E weaknesses, weak reporting systems, and a lack of stakeholder buy–in.

Skills Training: The RDB proposed recommendations such as the need to strengthen the coordination framework with clear roles and responsibilities; revamping the CD platform; relocating the National CD function to the Central Government; better M&E and reporting; joint planning; sector skills assessments; effective CDMIS system; and capacity–building of key role–players.

Furthermore, the CD platform should be conducted and what should be done to improve its effectiveness and efficiency. A key part of the assessment is to ensure that measures are implemented to maintain the quality of offerings.

Quality Assurance: The supply–side statistics indicate that Rwanda has a robust education and training system. Students are streamed into TVET programmes and STEM learning areas early. From stakeholder consultations, it is apparent that graduate quality should be improved for better labour market outcomes. There is a concern that education institutions that offer similar or the same qualifications differ widely in terms of quality outputs. Therefore, the system's main problem appears to be quality teaching and learning at all levels in the system.

As a starting point to address quality, there is a need to conduct a systemic evaluation of the quality assurance legal and regulatory environment to address duplicated mandates, non–standardisation of procedures, unclear roles and responsibilities, and other weaknesses inherent in the system. Modifications should follow it to eliminate systemic QA weaknesses.

At an institutional level, there is a need to assess the institutional quality in key areas of operations. Educators, trainers, lecturers, and education managers should be given to professional development on quality assurance and improvements at an individual level.

Promoting Skill Training: One of the challenges is to encourage private and public employers to invest in skills training for their employees sector wide.

There are two options. A skills levy grant scheme can be introduced whereby employers pay the Revenue Authority a percentage (usually 1–2%) of monthly payroll. The employer can then claim a rebate based on proof of staff training spending. A second option entitles the employer to claim a tax deduction on proof of workplace training. There will be a need to stipulate criteria to prevent exploitation of the skills levy grant scheme. Such schemes require comprehensive inter–department feasibility studies because they directly impact national revenues.

SECTION FIVE: SKILLS DEMAND AND MISMATCHES

5.1 INTRODUCTION

The section draws information from several sources to determine occupations in demand, skills gaps, and mismatches by:

- Analysing employment changes by major occupational categories and industries.
- Reviewing Rwanda's *Occupations in High Demand List* (2019 revision).
- Identifying occupations in demand and skills gaps from government policies, strategies and plans.
- Reviewing sector plans and skills studies to identify occupational demand.
- Analysing job vacancies from recruitment agencies.
- Conducting stakeholder consultations.
- Determining whether programme offerings address occupations in demand.
- Drawing finding of skills mismatches from the above.

5.2 UNDERSTANDING CHANGE THROUGH THE STRUCTURE OF EMPLOYMENT

Employment changes by occupation are skills demand signals.

5.2.1 Educational Level By Occupational Categories

Educational level by occupational categories is indicative of the structure of the labour market.

Exhibit 44: Education levels and occupational categories (Q1:2022)

Occupation Level	Absolute					Share				
	Thousands					*%*				
	None	Primary	Lower Sec	Upper Sec	Uni	None	Primary	Lower Sec	Upper Sec	Uni
Managers	–	1,9	4,6	7,2	30,3	–	0,2	2,1	2,4	13,3
Professionals	3,8	9,7	4,5	85,2	108,1	0,2	0,8	2,0	27,8	47,5
Technicians	1,0	3,2	0,2	5,1	15,1	0,1	0,3	0,1	1,7	6,6
Clerical support workers	–	0,7	1,8	10,3	11,5	–	0,1	0,8	3,4	5,0
Service and sales workers	132,1	164,2	66,5	99,4	45,1	7,9	14,3	30,4	32,4	19,8
Skilled agriculture, forestry	64,2	76,9	9,4	8,4	1,1	3,8	6,7	4,3	2,7	0,5
Craft and trades workers	69,3	110,5	29,8	38,0	6,1	4,1	9,6	13,6	12,4	2,7
Machine operators	18,5	40,7	16,9	16,5	6,3	1,1	3,5	7,7	5,4	2,8
Elementary occupations	1 392,8	743,5	84,9	36,1	3,8	82,8	64,6	38,9	11,8	1,7
Total	**1681,7**	**1151,2**	**218,6**	**306,3**	**227,6**	**100**	**100**	**100**	**100**	**100**

Source: National Institute of Statistics of Rwanda

Managers, professionals, and technicians comprise 67,4% of university education. Professionals are the highest percentage of university graduates with 47,5%. A high share of university graduates is also found in the service and sales worker category, making up 19,8% of university shares.

About 50% of the Rwandan labour force have no education, 34,3% have primary education, and 6,5% have lower secondary. Hence, 85% of the labour force could be categorised as low–skilled. From a workforce of 3 585 400, 3 051 500 have between none and lower secondary education.

If Rwanda is going to achieve its Vision 2050 goal of reaching High–Income Status, it would need to improve the population's education levels with a much higher proportion of workers in the upper secondary to higher education bands.

5.2.2 Shares of Employment

Changes in employment shares by major occupations are indicative of demand.

The exhibit tracks changes between 2018 and 2022.

Exhibit 45: Share of employment (2018–2022)

	2018	2019	2020	2021	2022	% Change
Total	**100**	**100**	**100**	**100**	**100**	
Managers, legislators and senior officials	1.2	1.2	1.7	1.1	1.2	0
Professionals	6.3	5.7	6.0	5.4	5.9	–0.4
Technicians and associate professionals	1.0	1.4	1.6	0.9	0.7	–0.3
Clerical support workers	1.0	0.9	0.9	0.9	0.7	–0.3
Service and sales workers	18.1	18.9	17.5	14.5	14.2	–3.9
Skilled agricultural, forestry fishery workers	6.7	7.5	7.5	3.8	4.5	–2.2
Craft and related trades workers	7.5	8.2	8.4	6.8	7.1	–0.4
Plant and machine operators/ assemblers	2.8	2.9	2.5	2.4	2.8	0
Elementary occupations	55.4	53.3	53.9	64.2	63.1	7.70

Source: National Institute of Statistics of Rwanda

The occupations that employed the largest share of people in 2022 were elementary (63.1%), sales and services workers (14.2%), craft and related trade workers (7.1%), professionals (5.9%) and skilled agricultural, forestry and fishery workers (4.5%).

The occupations with the lowest share of people in 2022 were managers, legislators, and senior officials (1.2%), technicians and associate professionals (0.7%), clerical support workers (0.7%), and plant and machine operators and assemblers (2.8%).

Employment shares for most occupational categories in 2022 compared to 2018 appear static, except for services and sales workers, which have declined by –3.9%, and elementary workers, which increased by 7.7%.

The decline in most occupational categories is due to the impact of the COVID–19 pandemic on the economy. It led to job losses in several categories, albeit slight in most cases.

The exhibits show that in terms of employment shares, the economy and, consequently, the labour market is not upgrading into higher value–added product and service segments due to the relatively unchanged sector shares by occupational categories.

5.2.3 Demand Through Occupational Change

Changes occurring in the occupational structure are signals of skills demand. We examine the employment and skills changes from 2018 to 2022 in the standard industrial sectors and occupations.

Exhibit 46: Occupational change (2018–2022)

	2018	2019	2020	2021	2022	Absolute / % Change
Managers	37 823	39 444	61 710	35 351	44 042	(6 219) 16.44
Professionals	195 820	181 015	215 128	172 436	211 286	(15 466) 7.90
Technicians and associate professionals	32 455	44 299	57 399	29 644	24 767	(–7 688) –3.69
Clerical support workers	30 482	28 997	32 901	27 626	24 286	(–6 196) –20.33
Service and sales workers	559 372	602 741	624 438	465 929	507 256	(–52 116) –9.32
Skilled agricultural, forestry/ fishery workers	206 863	237 950	266 774	121 407	160 010	(–46 853) –22.65
Craft and related trades workers	231 251	260 817	298 711	217 960	253 785	(22 534) 9.74
Plant and machine operators/assemblers	86 154	93 495	87 641	77 248	99 043	(12 889) 14.96
Elementary occupations	1 716 058	1 697 290	1 924 232	2 057 323	2 261 175	(545 117) 31.77
Total	**3 096 278**	**3 186 051**	**3 568 934**	**3 204 924**	**3 585 651**	**(489 373) 15.81**

Source: National Institute of Statistics of Rwanda

Positive absolute changes between 2018 and 2022 were recorded for elementary occupations (545 117), professionals (15 466), craft and related trade workers (22 534), plant and machine operators and assemblers (12 889), and managers (6 219).

The mid–level occupations, namely, technicians and associate professionals, clerical support workers, service and sales workers and skilled agricultural, forestry and

fishery workers, recorded employment declines over five years. These occupations appear to be severely affected by the pandemic.

Low–skilled jobs such as taxi drivers (bikers), childcare, waitressing, cashiers, sales assistants, domestics, and security guards are in demand. So, the smiling barista at Bourbon Coffee is not replaceable with automation.

5.2.4 Employment By Industries

Employment changes by industry are signals of skills demand. We examine industry employment trends between 2018 and 2022.

Exhibit 47: Employment change by industry (2018–2022)

Economic Activities	2018	2022	Difference	Change
Employed population	**3 096 278**	**3 585 651**	**489 373**	**15.8**
Agriculture, forestry and fishing	1 310 722	1 881 040	570 318	43.5
Mining and quarrying	55 768	27 353	–28 415	–51.0
Manufacturing	190 885	158 469	–32 416	–17.0
Electricity, gas, steam and air conditioning	8 019	4 318	–3 701	–46.2
Water supply. sewerage and waste	8 279	5 191	–3 088	–37.3
Construction	281 910	328 658	46 748	16.6
Wholesale, retail, repair vehicles, motorcycles	445 814	360 222	–85 592	–19.2
Transportation and storage	118 199	166 739	48 540	41.1
Accommodation and food service activities	54 809	59 181	4 372	8.0
Information and communication	16 040	9 905	–6 135	–38.2
Financial and insurance activities	23 818	29 714	5 896	24.8
Real estate activities	3 196	1 472	–1 724	–53.9
Professional. scientific and technical activities	19 871	25 109	5 238	26.4
Administrative and support service activities	49 161	41 692	–7 469	–15.2
Public administration and defence	55 884	59 168	3 284	5.9
Education	107 998	134 330	26 332	24.4
Human health and social work activities	48 193	46 600	–1 593	–3.3
Arts. entertainment and recreation	9 096	8 852	–244	–2.7
Other service activities	57 648	103 002	45 354	78.7
Activities of households as employers	211 274	130 875	–80 399	–38.1
Activities of extraterritorial organizations	19 695	3 760	–15 935	–80.9

Source: National Institute of Statistics of Rwanda

Agriculture, Forestry and Fishing: It is a significant employment generator with 570 313 new jobs and a percentage change of 43.5% between 2018 and 2022. The industry contributed 22% to GDP in Q4:2021 and is the largest employer. The industry is challenged by low local demand, domestic competition, insufficient local suppliers, insufficient land, and raw materials costs. Although agriculture is the largest sector of the Rwandan economy, it receives very little direct credit from financial institutions due to the sector's perceived vulnerability.

Locally sourced and imported timber costs are high. Locally produced goods are costly. The wood sub–sector faces challenges in the value chain from plantations to end products. The industry lacks modern equipment to meet international product standards. Consumer confidence in local products is a major challenge. Rwandan wood products find it difficult to compete with imports in terms of quality.[38] There is a shortage of skilled woodcraft workers, which points directly to the lack of on–the–job training and the quality of TVET graduates. Whilst there is abundant woodcraft labour, their occupational skills levels are an issue that should be addressed through the supply–side.

Both subsistence and commercial agricultural workers should be targeted for training opportunities. Upskilling these workers will increase food productivity and food security. They must improve their working conditions, wages, training and decent work. Moving to a high–income status necessitates that agricultural workers, the largest section of the employed labour force (52.4%), cannot be ignored.

Mining & Quarrying: Mining is Rwanda's second–largest export revenue earner in the country. In 2017, the sector generated $373.4 million of foreign exchange. Rwanda's mineral resources include cassiterite, coltan, wolfram, peat (used for electricity generation or processed as an alternative for firewood), gold and nickel. The country has other minerals such as amphibolite, granite, quartzite, volcanic rocks, clay, sand, and gravel. Rwanda produces between 8 000 and 9 000 tons of mineral compounds annually. Rwanda is among the top producers of tantalum, producing about 9% of the world's tantalum used in electronics. Rwanda has a gold and tin refinery.

The lack of mining skills is a major gap for mining operators and regulators facing the mining industry. The skills gap was also identified by the *Mining Policy 2010* as a challenge that needs to be addressed. A sector skills survey (2012) showed that more than 55% of the 2 721 mine workers had no basic skills. Due to limited exploration, mining, and processing skills, most operations still run artisanal and small–scale mining (ASM) operations with inherent problems. The skills gap is exacerbated because most miners in ASM operators lack basic education or have never been to school.

Skills enhancement, access to geological data, access to finance, improved infrastructure in mining areas, improved technological access and use, improved

[38] PSF (2019) Business and investment climate survey 2019–2021. PSF: Kigali.

access to markets, and improved standards for environmental protection, health and safety are issues for mining operators.

Manufacturing: The number of workers in the manufacturing sector declined slightly by 32 416 workers between 2018 and 2022. The percentage decline was 17%. It contributed 9% to GDP in Q4:2021 and is the fifth–largest employer. One hundred fifty–eight thousand four hundred sixty–nine manufacturing workers make up 4,4% of the total labour force. The Rwandan manufacturing sector is small in GDP and employment contribution. But it is a sector that should not be ignored because it has upside growth potential and offers structural transformation benefits.

Manufacturing can employ large numbers of unskilled and semi–skilled workers for decent work.

Refer to Annexure A1: Lesotho – Clothing Manufacturing

Manufacturing is often seen as a gateway to inclusive growth. It has the potential to create jobs, deepen and broaden local value chains, advance technology and cultivate local skills.

Refer to Annexure A2: South Africa – Automotive Manufacturing

Construction: The construction industry is an important player in job creation, not only in construction but in other sectors of the economy. It is the third–largest employer. This industry uses various inputs, such as construction materials from other industries. Hence, it contributes indirectly to jobs in manufacturing, mining, transportation, real estate, financial and business services.

The number of people employed in the construction sector increased by 46 748 from 2018 to 2022. The third largest employer contributes 7% to GDP and 9% to employment in 2022. There is a need to improve the quality of tradespeople in bricklaying, painting, carpentry, plastering, tiling, electrical and mechanical trades.

Activities in the construction sector are labour–intensive, and Rwandan companies achieve a competitive advantage not through enhanced skills levels but by reducing labour costs. There are very few investments in skills training. Moreover, technical education graduates must be retrained.

Youth, particularly those migrating from rural areas with low education levels, find the industry attractive due to an abundance of unskilled work opportunities. However, these low–skilled jobs are the most vulnerable, with wages ranging from 1 000 to 2 000 RWF daily.

Wholesale and Retail: Wholesale and retail is the backbone of the Rwandan economy and labour market. It is the second–largest employer (445 814) and will contribute 11% to GDP and 10% to employment in 2022. Significantly, 85 592 jobs between 2018 and 2022 were due to COVID–19, but employment is a rebound.

Skills development in this sector should be focused on short courses in core areas such as customer service, entrepreneurship, teamwork, time management, bookkeeping, merchandising, numeracy, English language, and inventory management.

Tourism and Hospitality: The sector has human resource challenges. These include cost and access to skilled labour. There is a shortage of hotel managers, tour guides, chefs and cooks. There are gaps in soft skills and international languages such as English, French, Spanish and Chinese. Undiversified tourism products are a constraint since almost 90% of the sector's earnings are gorilla tours.[39]

There is a sufficient supply of tourism graduates from TVET institutions, but their qualifications do not resonate with what tourism operators want.

Refer to Annexure A3: Seychelles – Tourism

Transport and Storage: Rwanda faces high transportation costs as a landlocked country. Due to the distance from a seaport, freight costs are high. The Government is exploring the opportunities for regional connectivity and developing infrastructure. It is expanding the road network, investing in the new Bugesera international airport, and exploring railway and water connectivity. The Government is planning the construction of four ports in Lake Kivu.

It is the fourth largest employer (166 739) and will contribute 4.6% to GDP and 10% to employment in 2022. The industry grew by 48 540 jobs, with further growth in the coming years.

Information and communication: Network issues for the distribution of ICT services are a business constraint. Furthermore, high internet service costs, low level of citizen awareness, lack of local content and services in the local language, weak telecommunication infrastructure in rural areas and the small number of digitally literate citizens are major challenges to sector growth. The cost of hosting in Rwanda is high, resulting in companies hosting their content abroad.[40]

[39] PSF (2019) Business and investment climate survey 2019-2021. PSF: Kigali.

[40] Ibid.

The industry has workers 9 905 in 2022 but employed 16 040 in 2018. Employment is expected to recover from 2022. Although the industry is small in employee numbers, it is a high–value add and contributes 2% to GDP. The nature of ICT and the speed of change requires short courses in micro–learning and digital credentialling to get a larger number of youths into this sector.

Refer to Annexure A4: Bangladesh – Digitalisation

Financial and insurance activities: Access to and cost of finance is major challenge businesses face. The top three financial constraints are interest rates charged by banks and other lenders, collateral requirements, and financial institutions' perceived risk level associated with start–up businesses. Commercial banks are the preferred financing source, followed by saving circles and microfinance institutions. Borrowing from friends and family remains a key source of informal finance, especially for micro–businesses which lack adequate collateral to access credit. Furthermore, the interest rate charged by micro circles and microfinance institutions (MFIs) is higher than commercial banks – about 2 to 3% per month.

The industry comprises 29 714 in 2022, up by 5 896 jobs. Financial services are the heart of a modern economy, and although small in employee numbers, it is a high–value add and contributes 3% to GDP. The universities offer finance programmes leading to national qualifications and short courses for employees. It is a fast–changing industry, so continuous skills development is a necessity. A national financial inclusion campaign is necessary since most workers and businesses are in the informal sector.

Refer to Annexure A5: Kenya – Mobile Money

Household employees: This industry is a significant employer of unskilled labour. It is the seventh–largest employer and cannot be ignored. Employment contracted by 38.1% in the period due to the COVID–19 crisis but is expected to pick up. Skills development for domestic workers is largely on–the–job. Therefore, the challenge is to improve working conditions, including minimum wage determination, as in the case of agricultural workers.

The development challenge facing Rwanda is not only upskilling the nation but improving the working and living conditions of the most vulnerable workers.

Education: It is the sixth–largest employer and contributes 3% to GDP and 3.7% to employment. From a TVET perspective, the challenge is to improve instructors' skills in schools and lecturers in polytechnics to drive quality improvements.

5.3 LINKEDIN RECRUITMENT

RDB partnered with LinkedIn to bridge information gaps and improve labour market matching and analytics. LinkedIn data was analysed in health, finance, energy, agriculture, information technology, tourism, transportation and storage, construction & engineering to identify occupations in demand and fastest–growing skills.

Refer to Annexure B for Linkedin Occupations in Demand, Top Skills and Fastest Growing Skills

Why LinkedIn? LinkedIn is the largest professional networking platform. The platform has over 675 million users, over 20 million employers, and over 20 million job postings worldwide. In Rwanda, there are over 247 000 users with LinkedIn profiles.

Talent Insights: LinkedIn allows macro–level data extraction from the local labour market. The data provides current local labour market insights that inform the country's evidence–based policy decisions. The data extracted from LinkedIn's talent insights report data over the last 12 months.

Sector Report: Analyses and provides an overview of the talent trends of a sector for the last 12 months. It identifies critical skills and provides insights into talent mobility across sectors and countries.

Method: The steps to generate information on Rwandan employees are generated from LinkedIn: create a talent pool report. Use different filters (job title, location, skills, industry, function) to narrow down the data/search/ to your preference.

Data Highlights: Where Rwanda is gaining and losing professionals; top recruiting firms; top professional titles; top skills; top industries and education details.

5.4 RECRUITMENT DIFFICULTIES

The Business Climate and Investment Survey (2020–2021) found that almost half of respondents indicated the skills level of school drop–outs as a major problem for recruitment and development of a competent workforce, followed by the cost of relevant training. The difficulty with the cost of relevant training for businesses continues to be a major challenge for the recruitment and development of a competent workforce. Likewise, the local availability of relevant training continued to be a major challenge for developing competent personnel.

Focus group discussions with various sectors revealed an inadequately educated workforce as a major constraint, especially in high–growth sectors such as hospitality, energy, e–commerce, creative industry, and ICT, among others. Businesses also revealed a lack of professional providers of adequate demand–oriented training and a need for improvement in the higher education system and Technical Vocational Education and Training (TVET). In addition, the business reported that many who received vocational training were mostly school dropouts or primary education.

The lack of skilled human resources leads to unhealthy practices such as poaching, fuelling wage inflation and compromising service delivery.[41]

Rwandan recruitment agencies: Findings of hard–to–fill vacancies and job openings from the major Rwandan recruitment agencies were solicited[42] The following agencies provided information:

- NFT
- Q Sourcing
- Right Seat
- The Bridge

KEY: REASONS FOR HARD–TO–FILL VACANCIES			
A	Lack of appropriate qualifications (under–qualified)	**G**	Undesirable job location
B	Lack of relevant work experience	**H**	Poor image of the industry
C	Wants more money than is offered	**I**	Over–qualified applicants
D	Inadequate employee social benefits	**J**	The unsuitable personality of the applicant
E	Unsuitable working hours	**K**	Questionable employment history
F	Employment equity considerations	**M**	Lack of communication or soft skills

[41] Public Sector Forum (2021) Business and Investment Climate Survey (2019–2021): PSF: Kigali.

[42] For confidentiality purposes, we will not reveal the data per agencies.

Source: Rwandan recruitment agencies

In what OCCUPATIONS has your agency experienced recruitment difficulties? *(Positions for which you get few suitable applicants or you advertise due to a lack of suitable applicants)*	**How many people did you need in the last 12 months?**	**What are the reasons for experiencing difficulty in recruiting people in these occupations?** *(Indicate the reason(s) by inserting the letter from the key below)*
Information Technology		
IP Engineer	4	A B F
Network Optimization Engineer	4	A B F
IT Sales Manager	1	A B
Sales Manager (Automobile)	2	A C G
Finance		
Risk Manager	2	A C
Chief Financial Officer	16	A B C
Financial Controllers	6	A B C
Financial Analysts	1	A B C
Media		
Digital Marketing Specialist	1	A B C
Co–ordinator	1	A B C
Content Creator	137	B
Communications Manager	1	A B
Grant Writer	11	A B F
Business Marketing & Sales		
Chief Operations Officer	1	C
Business Development Executive	30	C J
Business Development Managers	3	A B F
Project Co–ordinators	1	B
Software Developer	2	J C I
Executive Assistants/ PA	3	B C L
Consumer Insight – Food Production	9	A B
Hospitality		
Front desk/Waitresses/ Chefs	4	A B D E H L
Manufacturing Engineering and Sciences		
Engineer Site Supervisor – Energy	4	A B F
Food Technologist	6	A B F
Technical Services Manager	16	A B
Agriculture		
Ecosystem Partnership – Food Production	4	A B F
Built Environment		
Architect	4	B
Head of Design – Construction	3	A B
Head of Engineering – Construction	7	B
Senior Water Expert	1	C I
Higher Education		
Instructional Designer	10	A
Laboratory Manager	15	A B
Full Stack Developer	20	B
Teaching and Learning Specialist	19	A B

The following job opening was identified. These occupations may or may not be in high demand, but they do require to be filled in regularly.

Exhibit 48: Jobs openings

Occupation/Job Name	Number over 12 Months
Accountant	6
Bank Tellers	150
Call Centre Operators	100
Junior Sales Executives	50
Finance Manager	12
Accountant	8
HR Manager/HR Officer	7
BD/Sales Manager/Executive	6

Source: Recruitment agencies listed

Comments: The following comments were received from recruitment agencies:

"The lack of strategic management experience in candidates is a common observation … comes across on a regular for management–level positions. However, English communication remains a key issue at the lower end of the market Training Programs to address the above issues would be a significant boost to the market."

"More emphasis on equipping students/fresh graduates with soft skills such as communication while still in school. This is handy in expressing themselves properly, for instance, during interviews."

"Some skills are growing, e.g., Accountants with CPA & ACCA is more available than three years ago."

"So many Tech start–ups and few Rwandans with the required skills."

"Some companies are setting up headquarters in Rwanda, but few Rwandans can take on the senior management positions."

5.5 RWANDA OCCUPATIONS IN–DEMAND LIST

As per Ministerial Instructions N°003/1918 of 04/04/2013 Determining Occupations In–Demand List, the Minister of Public Service and Labour has produced an ***Occupations in Demand List (ODL)***. The List underwent two revisions, with the last one in 2019.

Definition: "Occupations in Demand List" means the list of occupations for which skills are lacking or in short supply in the labour market.

Scope: Occupations in Demand List shall apply to all foreigners seeking employment in Rwanda individually.

Updates: Occupations in Demand List shall be updated annually based on the information provided by the National Institute of Statistics of Rwanda and the Directorate General of Immigration and Emigration the Director–General of

Immigration and Emigration may permit a foreigner with special qualifications and skills not mentioned on the Occupation in Demand List.

Benchmarking with Occupations in Demand List: We have reviewed the Occupations in Demand List (ODL) against our findings and developed a signalling system for the list to act as a baseline for subsequent research.

The occupations in the **RED** font should be reconsidered as it is possible to:

- To find Rwandans to fill these occupations.
- Train Rwandans in a short period to become occupationally proficient.
- The skills are readily available among Rwandans.
- Occupations with less than three years of formal study.

Refer to Annexure C: Rwanda Occupations in Demand List (2022)

5.6 LITERATURE REVIEW OF OCCUPATIONS IN DEMAND AND SKILLS GAPS

We have conducted an extensive literature review of the government literature sector and other research studies conducted in Rwanda to extract findings of occupations in demand and skills gaps which include, amongst others:

- *Vision 2050*
- *National Strategy for Transformation (NST1) 2017-2024*
- *National Skills Development And Employment Promotion Strategy 2019 - 2024*
- *National Investment Policy 2017*
- *National Digital Talent Policy 2016*
- *ICT in Education Policy April 2016*
- *ICT Sector Strategic Plan (2018-2024)*
- *ICT skills Snapshot 2021*

- *Rwanda Decent Work Country Programme 2018 - 2022*
- *Employment and Skills Dynamics in the Construction Sector: A Sector Employment Study 2021*
- *Energy Skills Profiling Draft Working Paper #3/3 2014*
- *Skills Audit in Energy Off-the-grid subsector 2017*
- *Tourism And Hospitality Skills Brief 2018*
- *Sector Employment Studies: Employment and Skills Dynamics in the Tourism & Hospitality Sector March 2020*
- *Tracer Study of Graduates from Rapid Response Training (RRT)*
- *Integrated Business Enterprise Survey 2018*
- *Private Sector Development and Youth Employment Strategy (PSDYES) 2018-2024*
- *Transport and Logistics/Storage Skills Snapshot 2021*
- *Report of Skills Audit in Transport and Logistics Sector in Rwanda 2018*
- *Transport and Logistics Skills Profiling report for Rwanda 2018*
- *Skills Development Action Plan for Transport & Logistics based on Transport & Logistics Skills Assessment Report 2018*
- *Business and Investment Climate Survey 2019-2021*

Consultations

Consultations were held with representatives from:

- TVET (public and private)
- Higher Education
- Private business sector
- Recruitment agencies and HR Managers
- Government Ministries and agencies (MINEDUC MEFORTRA NISR RDB RTB)

OCCUPATIONS IN DEMAND		
MANAGERS, LEGISLATORS, SENIOR OFFICIALS	**PROFESSIONALS**	**PROFESSIONALS**
Logistics Manager	Civil Engineer	ICT operations and user support technician
Construction Manager	Structural Engineer	Communications technician
Construction Project Manager	Construction Engineer	Database specialist and systems administrator
Sales & Marketing Manager	Site Engineer	Computer Network and Systems Engineer
Managing Director	Mechanical Engineers	Telecommunications Technician
Transport Bus Development Manager	Metallurgist	Teacher – Early Childhood
Project Manager	Electrical Engineer	Secondary Education (Mathematics, English, French, Biology, Chemistry, Physics, Geography, Economics, ICT, History)
Site Manager	Environmental Engineer	Professionally Qualified TVET Trainer
Financial Manager	Telecommunications Engineer	Teacher – Special Education, including the blind, deaf and mentally disabled
CEO	Electronics Engineer	Education Manager (Pre–Primary School)
Engineering Manager	Software Engineer	– TVET lecturer's in

		Science, Technology, Engineering and Mathematics (STEM) teachers
IT Manager	Transport engineer	Lecturers at all levels
Food & Beverage Manager	Industrial Engineer	ICT Teachers
Hotel Manager	Transport economist	Education Methods Specialist
Hospital Manager	Metrologists	Language teachers in English, French and Swahili
Contact Centre Manager	Agronomist	Doctors and nurses specialising in Comprehensive Emergency Obstetric, New–born Care, Maternal and Neonatal.
Store Manager	Hydrometeorologist	Public health specialists, as well as other medical disciplines
Programme Manager	Hydrogeologist	Medical Practitioner (General)
Production/Operation Manager	Hydrologist	Pharmacist
Technicians/Associate Professionals	Architect	Medical Practitioner (Specialist)
Civil Engineering Technician	Quantity Surveyor	Medical Officer
Electrical Technician	Biomass specialist	Physiotherapist
Water Treatment Technician	Geologist	Dentist
Transport Eng. technician	Researchers & Scientist	Hospital Manager
Aircraft maintenance technician	Market Analyst	Radiographer
Aircraft engine mechanic	Accountant	Optometrist
Water Quality Analyst	Auditor	Pharmacist
Industrial Eng. Technician	Actuary	Medical officer
Electrical Eng. Technician	Credit Analyst	Health Informatics Specialist
Electronic Eng. Technician	Finance Officer	M&E Specialist
Mechatronic technician	Finance Manager	Professor
Mining engineering technician	Insurance Loss Adjuster	Development Advisor
Maintenance Technician	Financial Investment Advisor	Exporter
Instrumentation Technician	Business process analyst	Importer

Nurses	Risk Analyst	M&E expert
Enrolled nurse	Aeroplane Pilot	Zoologist
Psychiatric nurse	Helicopter Pilot	Nutritionist
Electro–mechanical technician	Software Developer	Veterinarian
Mechanical Eng. technician	Programmer Analyst	Agronomist
Structural Eng. technician	Database Designer / Administrator	Agricultural Scientist
Service and Sales Workers	ICT Security Specialist	**Skilled Agri, Forestry/ Fishery**
Water Process Controller	ICT Systems Analyst	Bee harvester
Environmental Protection	Data Management Manager	Beekeeper
Procurement Officer	Applications Programmer	Insect farmer
Compliance Officer	Data Scientist / Analyst	Farm manager
Public Health Officer	Computer Network Engineer	Commercial farmer
SHE&Q Practitioner	ICT Service managers	Farm Foreman
Call Centre Agent	System Analyst	Agricultural Specialist
Bookkeeper	Application Programmer	**Skilled Craft/ Trade Workers**
Chef	Cyber Security Specialist	Plumber
Barista	Multimedia developer	Electrician
Confectionary Baker	Multimedia Specialist	Air–con / Fridge Mechanic
Tourism Trainer	Software programmer	Diesel Mechanic
Wholesale and Retail Trainers	Coders	Electrical Fitter
Confectionery Maker	Software Developer	Auto–electrician
Baker		Boilermaker
Graphic Designer		Diesel Mechanic
Industrial Products		Petrol Mechanic
Sales Representative		Mechanical Fitter
Supervisor		Millwright
Plant and Machine Operators and Assemblers		Toolmaker

Loading operator		Carpenter
Truck driver		Welder

5.7 CONCLUSION

We have drawn information from many sources to compile a list of occupations in demand. We have gone even further to benchmark the current official *Occupations in Demand List* (2019) with our List (2022) to corroborate the findings. In this section, our Occupations in Demand List (2022) aligns strongly with the Government's *Occupations in Demand List (2019)*.

The state invests significantly in education and skills development across the education and training system. Although education institutions, training consultancies, companies and donor agencies are making concerted attempts to upskill the nation, these efforts are taking place independently. It provides the Sector Councils with an opportunity to bring coherence to the national skills development programme by acting as intermediaries to supply (training providers) and demand (employers). It will bring coherence to skills development provision taking place on multiple fronts.

Findings and recommendations: *As a starting point, we recommend the following once this Report is approved and ready for public dissemination:*

- *A high–level report should be launched to inform key decision–makers of the findings and recommendations and solicit support.*
- *There should be a public media campaign to make the general public, especially parents and youth, aware of occupations in demand.*
- *There should be a roadshow to inform labour market actors, education institutions, schools and local communities of the findings and recommendations of the Report.*
- *An action plan should be devised to incorporate the recommendations into the NSDEPS.*
- *The recommendations should be part of the NSDEPS and Strategic Plan of the Skills Office instead of a separate initiative, which it is not.*
- *Workshops should be convened with public and private education institutions to discuss occupations in demand, skills gaps and the programme mix of institutions.*
- *Workshops should be offered to educational institutions on labour market information and intelligence.*
- *A research plan should be developed for RDB staff to prepare for the 2023 Skills Report.*

- *The Sector Skills Councils should engage with the List of Occupations in Demand (2022) and develop a strategic plan of how it will play a coordinating role in the system.*

SECTION SIX: FUTURE SKILLS

6.1 INTRODUCTION

The fast–changing world requires more effort in determining future skills needs and devising strategies to potentially address latent occupational shortages and skills gaps. In Rwanda, skills development and job creation are at the forefront of the agenda of the government's plan. It has targeted creating 15 million productive and decent jobs by 2024. Some of these jobs will include future occupations that are not currently in the labour market.

6.2 FUTURE OCCUPATIONS

Based on an international and local literature review, we have identified the following potential future occupations:

	EMERGING & FUTURE OCCUPATIONS
TRANSPORT	Drone Pilot / Logistics Analyst / Software Programmer / Drone Mechanic / Transport Economist / Pilot
AGRICULTUR EFORESTRY AND FISHERIES	Solar PV/wind turbine technicians / environmental protection technicians / soil and water conservationists / environmental restoration planner / waste-water engineers / energy auditors / meteorologists
ICT	Data Analysts/Scientists / AI and Machine Learning Specialists / Multimedia Specialists / Cyber Security Analysts / Digital Marketing Specialists / Digital Transformation Specialists / Cloud Engineer / DevOps Engineer /AI Specialist / Big Data Developers / Mobile Application (App)
Environment & Urbanisation	Climatologists / Conservation scientist / Air Quality Engineer / Energy Analyst / Geoscientist / Renewable Energy Engineer / Environmental Engineer / Hazardous Materials Removal worker / Solar Panel and Wind Turbine Technician / Urban Planner / Architect / Landscaper
TOURISM	Ecotourism/Sustainable Tourism Educator / Ecotourism Specialist /Wellness Experts / Content Marketers / Digital Marketing Storytellers / Guest Experience Designers/Creators / Corporate Social Responsibility Experts.

Energy	Wind Turbine Technician / Solar Installer / Clean Car Engineer / Environmental Engineer / Sustainable Builder / Energy Auditor / Materials Scientist / Mining Engineer
Manufacturing	Data Analysts / Data Scientists / Robotic Engineers / Software Engineers / eLearning Designers / User Experience Analysts / Civil, Mechanical, Structural
Mining	Mining Engineer / Heavy duty equipment mechanics/ Process automation specialists/ Geologists and geo-physicists/ Cartographers and Surveyors/ Power engineers and power systems operators/ Steamfitters, pipefitters and sprinkler system/Geological and mineral technologists and technicians/ Underground production and development miners/ Geochemist
Health	Occupational Therapy and Physical Therapist/ pharmaceutical engineer /Health Information Technician/ Phlebotomists/ Mental Health Counsellor/ Dental Hygienist/ Diagnostic Medical Sonographer/ Radiologic Technician/ Medical Technologist or Laboratory Technician/ Virtual Reality therapist/ Medical Records and Health Information Technicians
FINANCIAL SERVICES (Finance, Banking and Insurance)	Financial Manager/ Digital Marketing and Strategy Specialists/ Business Development Professionals/ Business Services and Administration Managers/ Risk Management Specialists/ Financial Analyst/ Actuary

6.3 SKILLS GAPS

The future of work in Rwanda will require a substantial improvement across four transversal skills: ICT, leadership, languages and soft skills. Workers need these transversal or "catalytic skills" on any level and in any profession or occupation to allow them to function in a more complicated and continuously changing work environment. The rising demand for these skills responds to global trends and Rwanda's specific development pathway. Developing them will increase labour productivity across sub–sectors and accelerate economic transformation.

These are general skills gaps:

Business	Technology	Data Science
Skills in this domain focus on the practice and day–to–day running of a business	*Skills in this domain focus on creating, maintaining and scaling computer systems and software*	*Skills in this domain focus on capturing and utilising the data generated within a business for decision–making and powering underlying products and services*
1) Accounting is about proper record keeping and communication of financial information for corporations in accordance with government regulations. Sample skills: Auditing Financial Accounting	1) Computer Networking is the process of creating a digital telecommunications network where connected devices exchange data with each other. Sample skills: Cloud Computing Internet of Things Sample skills: Mobile App Development	1) Data Management comprises everything related to managing and accessing data for reporting analysis and model building. Sample skills: Cloud APIs Hadoop
2) Communication is the practice of discussing between two or more individuals in written or oral forms. Sample skills: People Skills Writing	2) Databases are an organised collection of data generally stored and accessed electronically from a computer system. Sample skills: Relational Database Key–Value Database	2) Data Visualization involves the creation and study of visual representations of data to communicate information clearly and efficiently. Sample skills: Tableau Plotting Data
3) Finance is focused on the efficient allocation of capital	3) Operating Systems consist of building system software	3) Machine Learning creates algorithms and statistical

Business	Technology	Data Science
towards investment opportunities under conditions of risk or uncertainty. Sample skills: Financial Ratios Blockchain	that provides common services for other types of computer programs. Sample skills: C Programming Language	models that computer systems can use to perform a specific a task without explicit instructions. Sample skills: Multi–Task Learning Deep Learning
4) Management is about how to set a company's strategy and coordinate the effort of employees. Sample skills: People Management Business Analytics	4) Security Engineering is a specialised field that focuses on the security aspects in the design of systems need to be able to deal robustly with possible sources of disruption. Sample skills: Cybersecurity Cryptography	4) Math is the study of numbers and their relationships applying these principles to models of real phenomena. Sample skills: Calculus Linear Algebra
5) Marketing is the process of creating relationships with potential and actual customers allowing businesses to identify how they should present themselves and whom they should cater to. Sample skills: Digital Marketing Product Placement	5) Software Engineering involves applying rigorous principles to the design development, maintenance testing and evaluation of computer software. Sample skills: Software Architecture Software Development	5) Statistical Programming is the set of programming languages and tools used to create statistical models and algorithms. Sample skills: R Python
6) Sales is focused on taking a company's products and services to market and transacting with actual customers. Sample skills: Cross–Selling Lead Generation	6) Computer Programming is the process that professionals use to write code that instructs how a computer application or software program performs Sample skills: JavaScript, Java	6) Statistics deals with all aspects of data collection organisation analysis interpretation and presentation. Sample skills: Regression AB Testing
7) Entrepreneurship is the process of designing, launching and running a new business. Sample skills: Adaptability Innovation	8) Cloud Computing involves delivering computing resources namely hardware software or software development platforms via the internet.	

Business	Technology	Data Science
	Sample skills: Software as a Service	
8) Human Resources refers to the corporate function of overseeing the various aspects of employment, such as onboarding/offboarding labour law compliance employee benefits and talent acquisition. Sample skills: Benefits Employee Relations	9) Web Development is the work involved in developing websites. It can range from developing a simple static page to complex web applications such as e–commerce sites. Sample skills: Angular HTML and CSS	
	10) Mobile Development is the process of developing software applications for mobile devices such as mobile phones or tablets. Sample skills: Android Development iOS Development	

Source: https://www.smallbusiness.wa.gov.au

6.4 CONCLUSION

We appear to be on the cusp of a new age. The era of digitalisation looks set to revolutionise the status quo, from the world of work to the way we live, from leisure activities and public space to education. Innovative hardware and software allow these processes to take place faster, flexibly and be less location–dependent.

Some changes that can be expected are the following

- New production technologies and processes.
- New skills requirements – new occupations and skills gaps.
- Technology–enabled learning modalities.
- New work forms.

How unfolding technologies will influence work, occupations, and skills are unclear. Certain skills may become redundant, and the possibility of re–skilling/upskilling is not foreclosed. Some professions may even become obsolete due to the advancement of these new technologies. Artificial Intelligence (AI) notably influences how individuals work and interact with technology. Examples include human resource information systems, blockchain and Big Data analytics. AI platforms replace routine tasks such as bookkeepers, casino cashiers, travel agents, Information Technology (IT) support, and financial planners.

Technological skills: Rwanda is making progress in digitalisation, which speaks to future skills. *We recommend an EdTech observatory to measure digital and technological skills progress, including determining curricula/programmes that address future skills needs. Digital training of teachers/lecturers and students should be scaled up. Create the conditions for developing and updating digital educational resources as a common good. Invest in hardware and software in educational institutions.*

SECTION SEVEN: FINDINGS AND RECOMMENDATIONS

This section offers recommendations based on the findings from the preceding sections. The recommendations prioritise inclusive skills development for people in the formal and informal labour markets. Skills development should address the vulnerable unemployed, low–skilled youth women and those in precarious employment. The challenge is to respond to the country's diverse skills needs in a manner that allocates resources optimally and addresses all skills requirements.

Some of the challenges discussed in earlier sections require responses that go beyond skills development and fall within the ambit of other Ministries and organisations. These are highlighted in the reports. We focus on skills development recommendations.

7.1 GENERAL FINDINGS

Occupations in Demand: There is a demand for high–skilled workers but a surplus of low–skilled workers in the Rwandan labour market, i.e., a discrepancy between the skills employers demand and those of workers. We identified 268 occupations in demand. Of this, 228 occupations (85%) fall in the high skills category (managers, professionals and technicians), with the majority in the professional category (155). Therefore, there should be a bigger push to stream more students into “occupations in demand” programmes at polytechnics and universities in Rwanda and abroad.

The labour market is “flooded” with unskilled or low–skilled, most of whom are in agriculture, thus creating a classic structural mismatch. However, the employment structure is changing due to globalisation, market integration, technology, and the government's goal of making Rwanda a high–income country. It necessitates a structural shift from primary agriculture to industry and tradable services such as information technology, agro–processing pharmaceuticals, tourism, business process outsourcing, energy, manufacturing, transport and logistics, and financial services.

The labour market analysis reveals that middle occupational categories such as clerks, service and sales workers, skilled agricultural workers, and craft workers are declining employment numbers. It requires further investigation.

Quality and field–of–study mismatches: A major concern in stakeholder consultations is graduate quality system–wide. A key constraint to reducing skills mismatches is the inadequate basic education quality. English language proficiency, numerical, literacy and communication skills should be improved. Furthermore, transition rates from primary to secondary and secondary to tertiary are also low.

Although education levels are improving, the population remains relatively low–skilled. The mismatch between the qualifications and skills demand has led to rising graduate unemployment and field–of–study mismatch. For example, there appears to be a high enrolment in business services, arts and crafts, and tourism and hospitality in TVET enrolments for Levels 1–5, possibly leading to an oversupply for these services. Similarly, enrolments for in–demand skills such as telecommunication, electronics, manufacturing and mining are relatively low. Similarly, business, administration and law comprise 24,2% of total university enrolments in 2021.

There is much scope for improvement in individuals' education and skills levels and better alignment between these factors and the country's skills demand. The unemployed and mismatched science, engineering and health graduates suggest that demand for these graduates must be increased to lead to employment.

Unemployment: There were 1 104 194 NEETs in Q1:2022. It is 30% of the 15–29 years, considering there are 3 653 656 persons in this age category.[43] Almost one–third of youth are NEET. Rwanda has a youth unemployment problem that will escalate if not addressed.

The fundamental problem is not with youth but the economy's structure which provides far too few opportunities for decent work. There is a need to acknowledge that the real problem is not a “youth employment” crisis but a “missing jobs” crisis. It is not about the youth but the economy. Thus, the youth employment problem cannot be solved in isolation from the country's major macroeconomic challenges. Indeed, focusing on youth–targeted interventions distracts policymakers from developing a policy agenda for structural transformation. Only a wider set of policy options that give priority to tackling broader structural issues has the potential to deliver results.

Quality Jobs: The Rwandan economy lacks formal, non–agricultural jobs that could be considered “good” or “decent”. The manufacturing sector is too small to offer decent, sustainable employment to the youth. While there are specific entry and skill development issues that youth need to navigate in the labour market, the main reason for poor youth employment outcomes is the same as the reason for poor adult employment outcomes: the economy's structure.

[43] NISR (2022) Labour *Force Survey trends – February 2022 Q1*. Kigali, Rwanda: NISR. https://www.statistics.gov.rw/datasource/labour-force-survey-0

7.2 OUR APPROACH

We approach recommendations in the following way:

Immediate response and quick wins	Recommendations will identify some low–hanging fruit or quick reforms that can take place in a short space of time and have a genuine impact on the sectors. Normally, quick wins focus upon the sharing of information or campaigns, as well as the setting of forums to confirm priority areas or key occupations to focus upon.
Short to medium–term interventions	Once the immediate reforms have been tackled, it will be necessary to move to the short to medium–term measures that start the process of systemic change. The emphasis of these reform measures is to build upon the foundation and to set up more permanent structures, provide incentives, and enhance the capacity of the current education and training system.
Longer–term systemic change	The final part of the reform process would cover the medium to longer term, ensuring that systemic change occurs and reforms are sustainable.

Based on the findings from the preceding sections, we have structured the recommendations in the following thematic areas:

- Graduate unemployment
- Youth unemployment (NEETs)
- Quality assurance
- Occupations in demand
- SMME development
- Workplace skills training
- Sector Skills Councils

7.3 RECOMMENDATIONS

The recommendations are set out as follows:

Short–Term	Medium–To Long–Term	Key Stakeholders
Graduate Unemployment		
▪ Engage private sector through SSCs, development partners, civil society organisations to offer graduates internships and employment. ▪ Develop occupational competency frameworks and code of good practice for internships. ▪ Develop a young professional programme for STEM graduates in sector–specific projects.	▪ Develop a graduate tracking scorecard/ graduate tracking system to measure graduates labour market outcomes ▪ Devise incentive measures to encourage employers to offer internships and employment (e.g., youth employment tax incentive). ▪ Convene an annual award ceremony for the most active employers offering internships and employment. ▪ Develop good practice case studies and student success stories.	**MINEDUC, MIFOTRA, HLIs, RP, RTB, HEC, NESA SSCs, PSF**

Short–Term	Medium–To Long–Term	Key Stakeholders
Youth Unemployment (NEETs)		
▪ Support NEETs with skills training (occupational and life skills) and financial support to set up low capital intensive businesses – car wash, catering, baking, construction, coding, cleaning services, repairs and maintenance, beautician, hairdressing, etc. ▪ Strengthen employment services outreach programmes. ▪ Support labour intensive public works programmes that employ a large number of youth. ▪ Conduct a rapid assessment study to understand the root causes of NEETs and propose possible solutions.	▪ Establish a youth guarantee scheme to support employers to absorb NEETs from the localities in infrastructure projects. ▪ Offer a voucher system to NEETs for short term skills training to fill jobs in demand. ▪ Develop a job shadowing partnership network for job shadowing opportunities with local businesses.	**MINEDUC, MINECOFIN, MYCULTURE, MIFOTRA, RDB, MINALOC, DISTRICTs, PSF, RTB, RP**

Short–Term	Medium–To Long–Term	Key Stakeholders
MSMEs Development		
▪ Develop an implementation matrix for policy recommendations drawn from studies and surveys conducted on MSMEs development. ▪ Develop a skills development MSMEs strategy to support capacity–building.	▪ Conduct awareness sessions on Decent Work in MSMEs. ▪ Harmonise policies and procedures among government institutions in charge of enforcement of quality standards (FDA, RICA, RSB) for SME growth and sustainability.	**MINICOM, RCA, RDB, PSF, MIFOTRA, Rwanda FDA, RICA, RSB, MINALOC, DISTRICTs**
Quality Assurance		
▪ Assess the state of the current quality assurance and accreditation frameworks in TVET and higher education: legal framework, institutional registration, accreditation, qualifications development, standards setting, M&E, qualifications development, certification and funding.	▪ Develop regulatory and accreditation framework for out of school training programmes.	**MINEDUC, HEC, NESA, RTB, RP, RDB, MIFOTRA, NGOs, RCSP, DPs, HLIs**

Short–Term	Medium–To Long–Term	Key Stakeholders
TVET		
▪ Identify and develop new programmes to address occupations in demand.	▪ Continuous capacity building of TVET trainers. ▪ Strengthen industrial academic linkages to equip TVET trainers with hands on skills. ▪ Promote and coordinate dialogue and linkages between TVET, universities, SSCs and employers.	**MINEDUC, RTB, RP, SSCs, NESA, HLIs, PSF, MIFOTRA, RDB**
Occupations in Demand		
▪ Review the existing ODL to identify occupations for which no learning programmes are available and develop new programmes to address occupations in demand.	▪ Develop occupational qualifications for occupations in demand. ▪ Develop short skills training courses for skills gaps.	**RDB, MIFOTRA, DGIE, MINEDUC, HEC, HLIs, SSCs, NESA, RP, RTB, PSF**

Short–Term	Medium–To Long–Term	Key Stakeholders
Workplace Learning		
▪ Develop incentives packages to support the implementation of workplace learning. ▪ Strengthen the monitoring and evaluation of the implementation of workplace learning.	▪ Mobilise resources to implement WPL scheme/ interventions. ▪ Launch a national WPL awareness campaign for employers, workers, students and training institutions.	**MIFOTRA, MINECOFIN, RDB, MINEDUC, PSF, SSCs, RTB, RP**
Sector Skills Councils		
▪ Conduct capacity building with SSCs to understand economic, industry and labour market needs, how the training system works, quality assurance, and sector skills assessments. ▪ Conduct an awareness campaign in the system to mainstream SSCs in the public domain. ▪ Develop partnerships with key role–players in the sector to promote workplace training, apprenticeship, traineeships and internships. ▪ Conducting a feasibility study for a funding model for SSCs.	▪ Establish technical working groups in the SSCs for: ○ Curriculum ○ Workplace learning ○ Partnerships ○ Occupational standards ○ Training/RPL ○ Quality assurance ▪ Entrench SSCs in a legal framework	**RDB, SSCs, PSF, DPs, HLIs, RP, MINEDUC, HEC, RTB, MIFOTRA**

7.3 CONCLUSION

We employed the approach of Labour Market Analysis to analyse a comprehensive array of labour market–based and economic measures to make determinations on skills supply, demand and mismatches rather than a single source of evidence or method. Reliance on a composite of labour market signals and indicators allows the researcher to form judgments based on the weight of market evidence.

Labour market analysis is not an exact science. Many factors impact the functioning of the labour market, and findings from research and labour market information are subject to differing interpretations.

The analysis presented reflects the state of the skills in Rwanda. Although it is impossible to draw linear conclusions, the findings provide signals for labour market actors of skills imbalances in the labour market. The findings also provide career guidance and counselling for new labour market entrants.

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ANNEXURE A: CASE STUDIES

(A1) LESOTHO – CLOTHING MANUFACTURING

During the 1990s, Lesotho attracted Chinese clothing manufacturers under the *Africa Growth Opportunities Act* to set up clothing factories. At its peak, the industry employed between 50 000 and 60 000 women from subsistence agriculture and informal activities into wage employment as sewing machinists. The machinists, who had no experience working in an industrial plant, were trained to work on a production line and acquired much–needed garment–making skills. They were able to manufacture clothing products for the US market.

Women tend to be the most vulnerable group and are responsible for the upkeep of the household. The clothing industry was predominantly female workers. Manufacturing processes are easily standardised and scaled, complementing economic clustering in cities and towns. The growth of the clothing sector also has multiplier effects on the economy. The sector benefits from technological change, knowledge and skills transfer and productivity growth, thus exhibiting positive learning and process development opportunities.

The growth of the Lesotho clothing industry shows how vulnerable groups can be targeted to be brought into the mainstream economy.

(A2) SOUTH AFRICA – AUTOMOTIVE MANUFACTURING

The automotive industry has been fundamental to South Africa's economy for decades. It contributed 6.8% (4.3% manufacturing and 2.5% retail) to GDP in 2018. In addition, automotive exports are valued at nearly R180bn and comprise 14.3% of South African exports. Moreover, in 2018 the industry employed around 110 000 people (across vehicle and component manufacturing), producing over half a million vehicles. This makes South Africa the largest automotive producer in Africa (54.3%), with many of the major OEMs (VW, Ford, Mercedes, BMW, ISUZU) operating in South Africa. The South African automotive industry contributed 6.8% (4.3% manufacturing and 2.5% retail) to gross domestic product (GDP) in 2018. The government has recognised the importance of well–designed automotive incentives, supporting the industry through consecutive industry incentive programmes.

The Masterplan aims to increase the domestic industry's technological content by favouring technology transfer, foreign direct investment, and cooperation with foreign universities and research centres to develop workforce skills. Appropriate workforce skills and technologies can make South Africa an early mover in the African continental automotive hub. The sector can significantly develop Black technical, professional, and management skills at an OEM and Tier 1 level through to 2035, with this benefit amplified by the projected growth in employment.[44]

[44] Department of Trade & Industry (2018) *South Africa's automotive industry masterplan to 2035*, 18 December. DTI: Pretoria.

(A3) SEYCHELLES – TOURISM

Seychelles has turned the tourism sector into a veritable success story. The country is blessed with natural wonders, a rich culture, hospitable people, beautiful beaches and mountain backdrops. It has coupled this with good governance and strategic policy choices. Tourism contributed 65.8% to GDP in 2019, with 30,700 workers employed, representing between 70% and 80% of the formal labour force.

The government developed a Seychelles Tourism Master Plan: 2012–2020 (TMP) and programmes to implement the plan. It introduced VAT (15%), a tourism marketing levy (0.5% of turnover), and a corporate social responsibility levy (0.5% of turnover). The tourism levy supports the Seychelles Tourism Academy (STA), training managers and professionals in the sector.

The Seychelles Tourism Board (STB) drives the tourism plan in the Ministry of Tourism. The STB, comprising stakeholders, market the country globally. The Seychelles Hospitality and Tourism Association (SHTA) represents the sector's interests and ensures sustainability. Strong institutional structures, a committed government and a workable plan have transformed Seychelles into a world–class, high–end tourist destination targeted at five–star travellers.

One of the sector's challenges is import–dependent on goods and services. On average, 80% of hotel expenditure is on imports. Therefore, revenue is used to purchase imported goods and services. Moreover, senior hotel managers are expatriates. About 20% total tourism workforce are foreigners. This creates tension with local employees.

The government is adapting its strategy to promote domestic tourism and reduce multinational hotel groups' carbon footprint. While high–end tourists will continue to be the mainstay of the sector, the government is keen to promote mid–price packages to expand its market. It wants to open local guest houses for tourists, enabling them to experience the real Seychelles. It is an opportunity for locals to benefit from tourism and create more labour market jobs.

The Seychelles tourism sector is a good example of a combined effort by all stakeholders to make the sector work. Strong institutions, a willing government, good leadership and a workable plan ensure success for the country.

(A4) BANGLADESH – DIGITALISATION

Bangladesh is an example of a developing country breaking ground in the digitalisation space. Bangladesh sells various services online, from data capturing to high–end services. Digitalisation is appealing to youth and women who are disadvantaged groups in the labour market.

The government developed a national policy framework for ICT and a regulatory framework to regulate the sector. Non–governmental organisations (NGOs) and private firms supported digitalisation efforts. The government set up an ICT Council to support digitalisation and work with the Ministry of Education to help schools develop computer laboratories.

Bangladesh has expanded its business process outsourcing industry by maintaining a 20% year–on–year growth. It is the second–largest supplier of online labour. Currently, much of the BPO industry is focused on IT services. About 40% of activities consist of sales and marketing.

The example of Bangladesh illustrates what can be done over a short time to support the structural transformation of a sector and the role that the government can play in facilitating this process.

(A5) KENYA – MOBILE MONEY

Kenya is making significant strides in the ICT and BPO spaces. The latter is valued at USD 717 million annually. Kenya is at the forefront of technological innovations and is referred to as Africa's “Silicon Savannah".

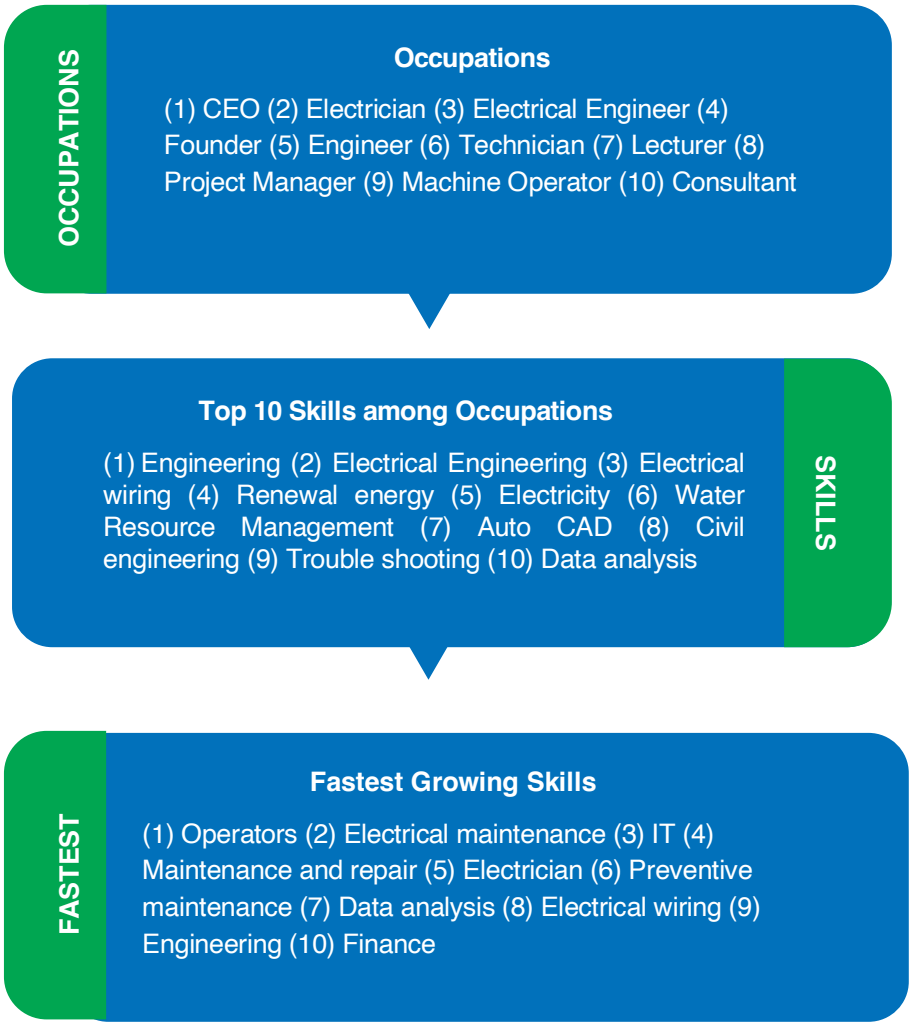
the government launched a digital economy blueprint containing an implementation framework to enable the country to leapfrog development stages. This blueprint hinges on five pillars: digital government, digital business, infrastructure, innovation–driven entrepreneurship and digital skills. The government committed to broadband, followed through with implementation, and has invested heavily.

Kenya is emerging as a leader in internet connectivity, ICT infrastructure, ICT services, mobile money and banking services. ICT contributes 8% to GDP; ICT growth was 23% over a decade. The remarkable growth can be attributed partly to globally acclaimed innovations such as the revolutionary mobile money transfer service *M–pesa* which allows users to send and receive money from anywhere in the world. The service is widely used by Kenyans and accounts for nearly 80% of money transfers in the country.

ANNEXURE B: LINKEDIN OCCUPATIONS AND SKILLS

The Top 10 Occupations, Top 10 Skills among Occupations and Fastest–Growing Skills in the Rwandan labour market were recorded by LinkedIn over 12 months.

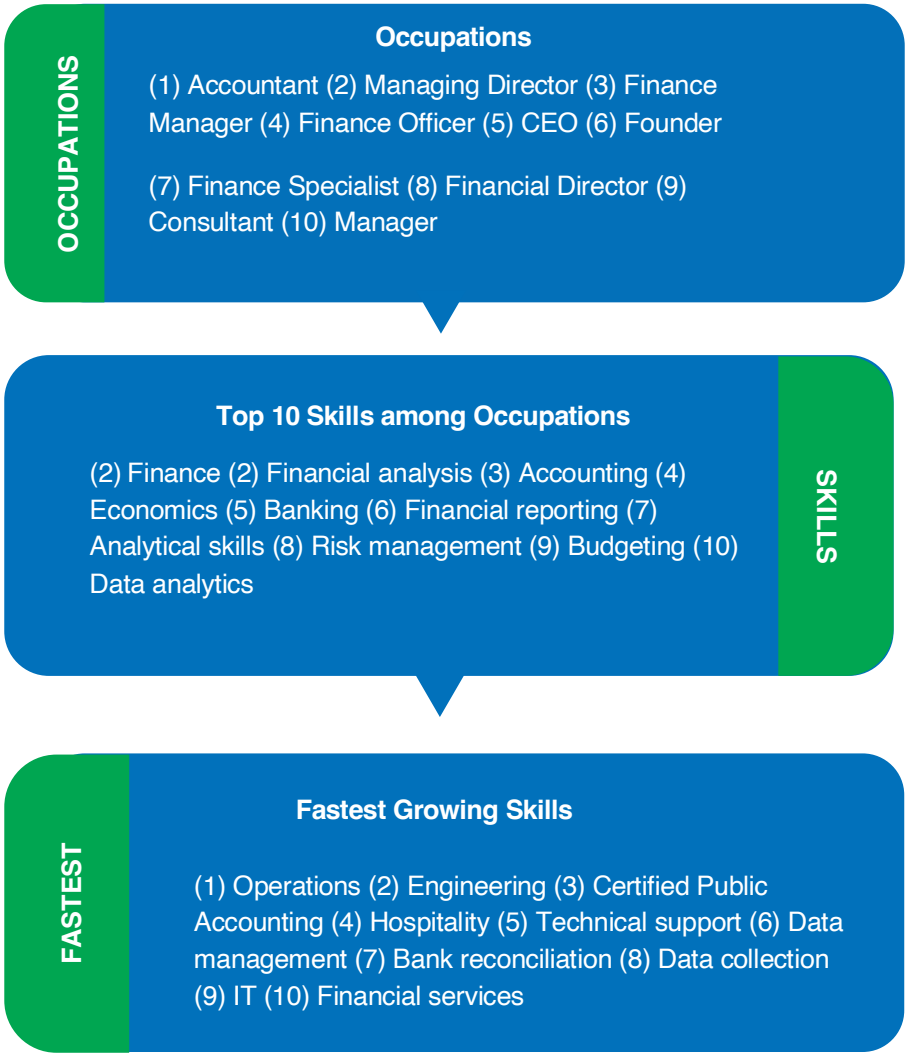
HEALTH



- The most common titles among this talent pool are Nurses, Doctors and Heads of hospitals *(Managing Director, Founders, CEOs).*
- The top 10 occupations comprise 50% of the overall occupations in the health sector registered on LinkedIn.
- The most common skills among professionals in this talent pool are nursing, healthcare, and healthcare management. Other top skills with high numbers not displayed on the graph are surgery, pharmacy and medical education.

- The fastest–growing skills added by this talent pool include health science, data entry and inventory management.
- This data compares professionals before the last 12 months and those who joined within the last 12 months.

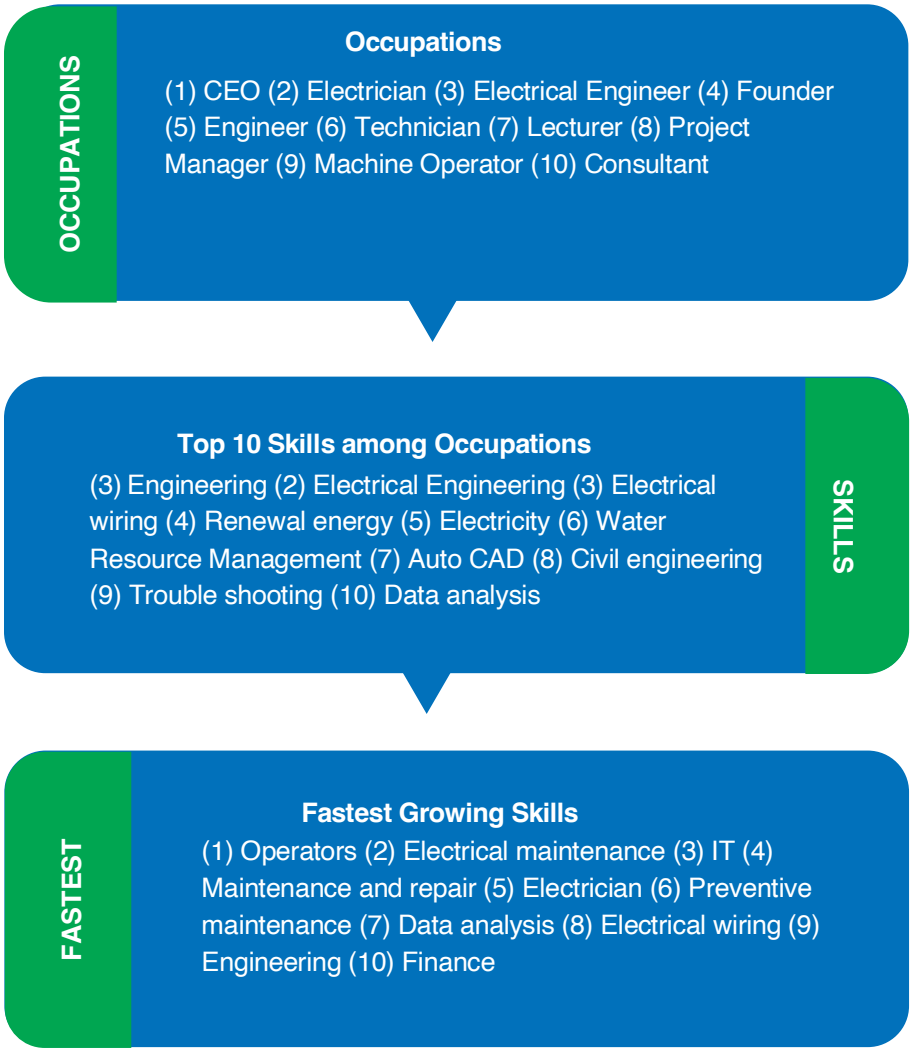
FINANCE



- A good percentage of professionals within this talent pool are leaders within their organisations with titles like Directors, Managers, CEOs and Founders.
- The most common titles among this talent pool are Accountants, Managing Directors, Finance Manager & Finance Officer.
- The most common skills among professionals in this talent pool are finance, financial analysis, and accounting.

- Other interesting top skills are programme management, auditing, entrepreneurship and insurance.
- The fastest–growing skills added by this talent pool include operations, engineering, and certified public accounting.

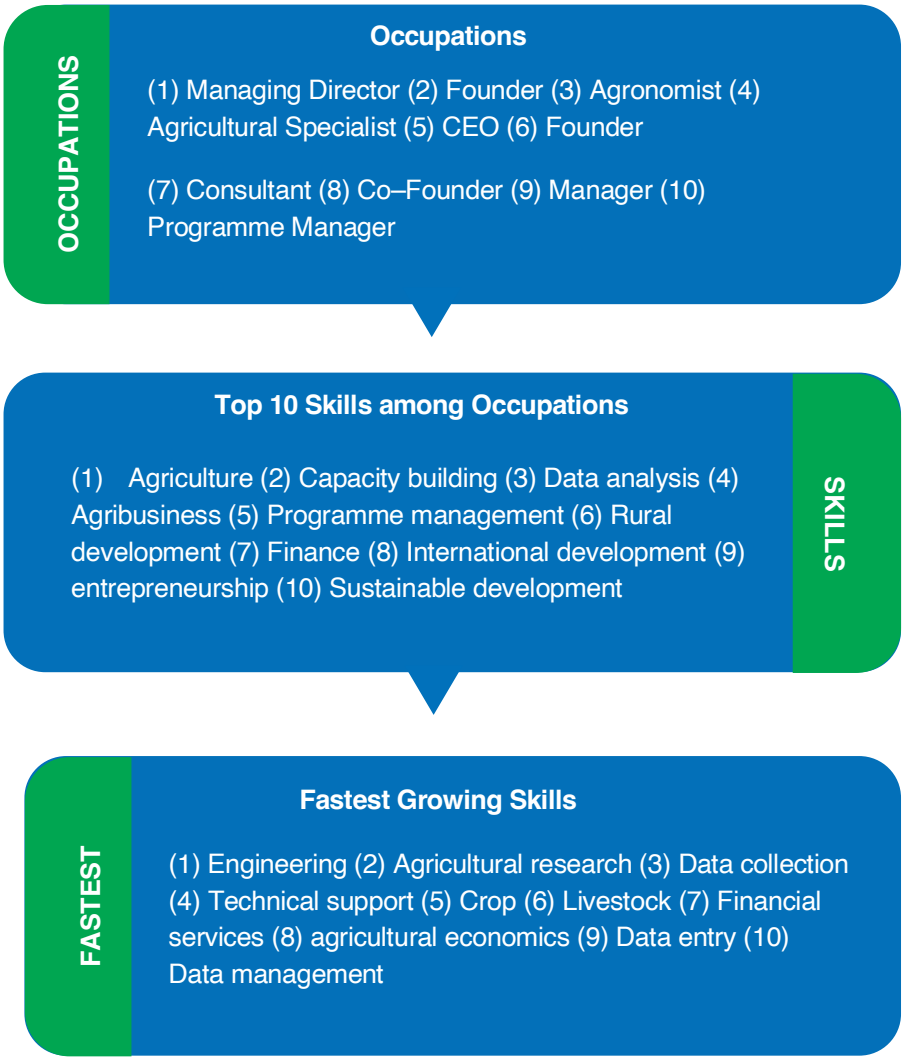
ENERGY



- A good percentage are leaders within their organisations, such as Directors, Managers, CEO and Founders.
- The most common titles among this talent pool are CEO, Electrician and Electrical engineer.
- Other interesting top skills not displayed on the graph are telecommunications, transmission, construction, manufacturing and sustainability.
- The most common skills are engineering, electrical engineering, and electrical wiring.

- The fastest–growing skills added by this talent pool include operators, electrical maintenance, and IT.

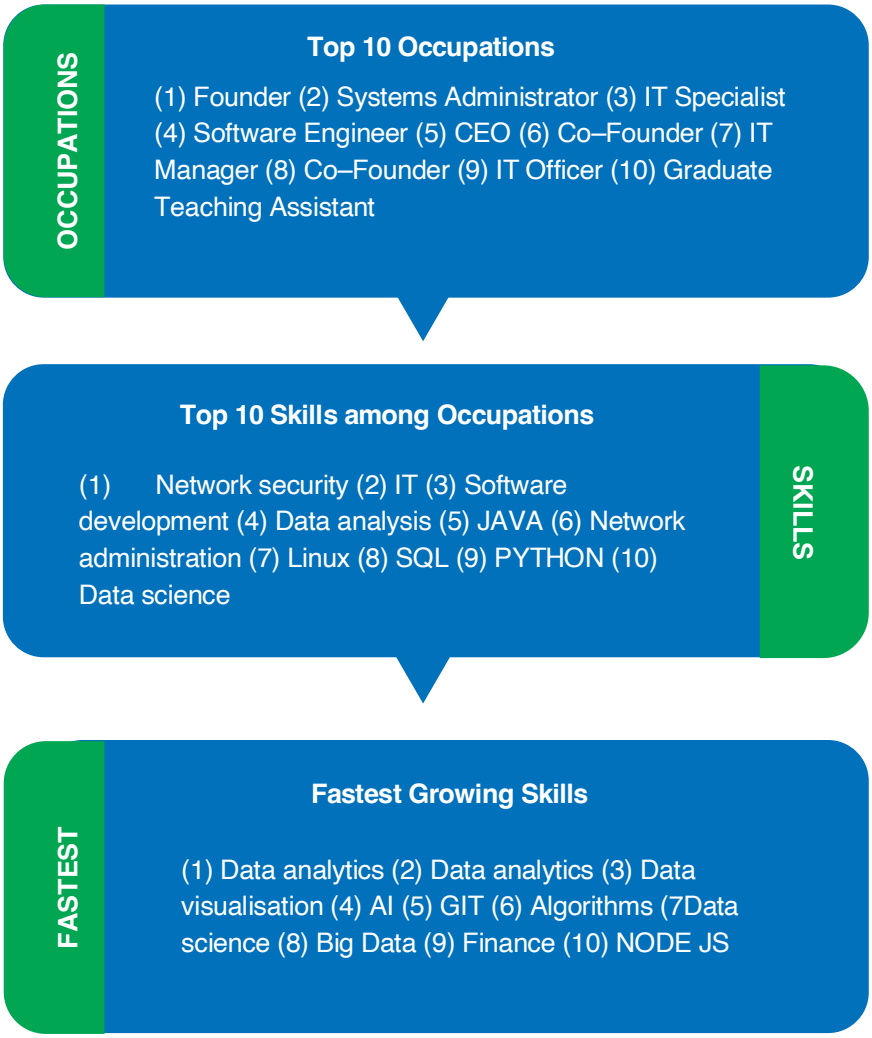
AGRICULTURE



- The most common titles are Managing Directors, Agronomists, & Agriculture specialists.
- Most leaders within their organisations are directors, managers, CEOs and founders.
- The most common skills are agriculture, capacity building, and data analysis.
- Other interesting top skills not in the graph are nutrition, economics, business planning and policy analysis.

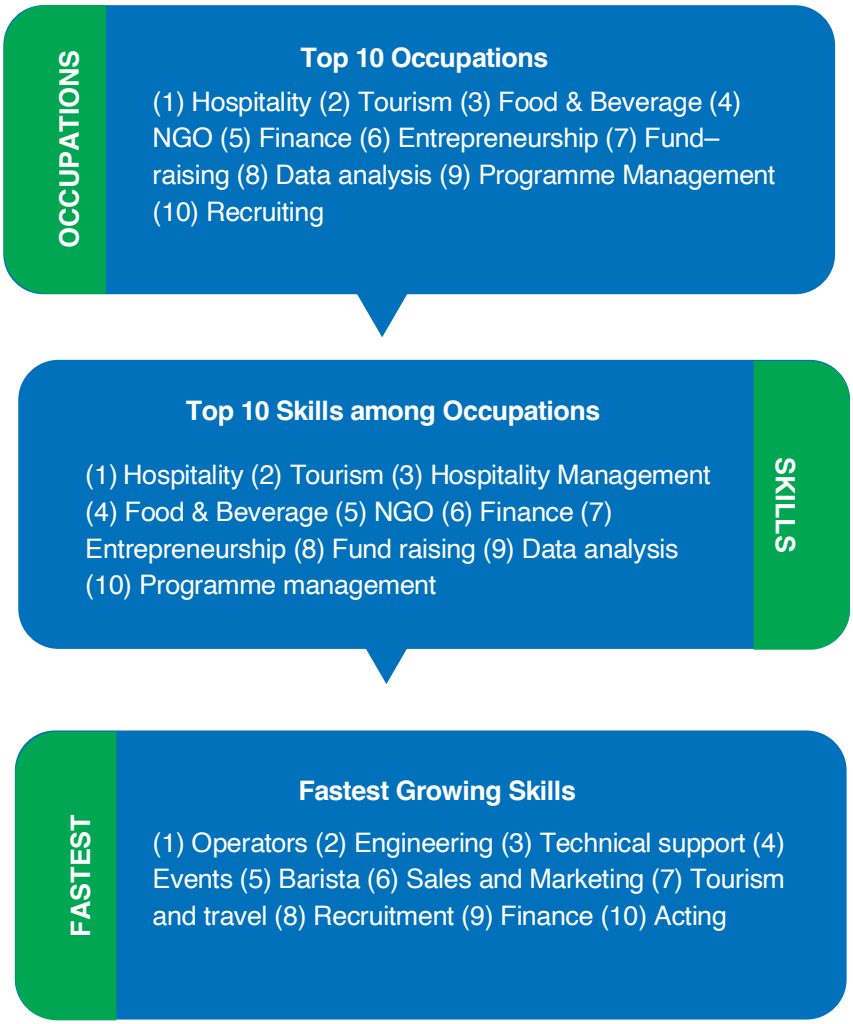
- The fastest–growing skills added by this talent pool include engineering, agricultural research, and data collection.

INFORMATION TECHNOLOGY



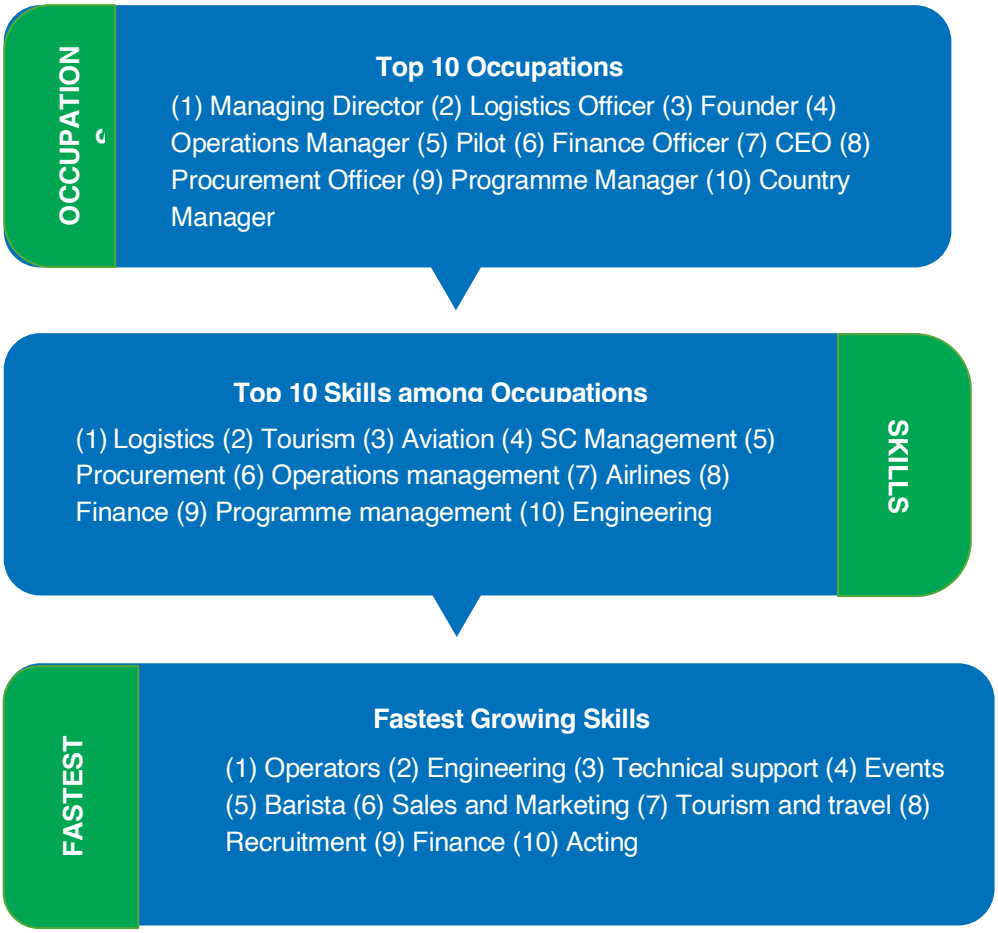
- The most common titles among this talent pool are Founder, Information technology specialist, and software engineer.
- Annual growth is highest for Graduate Teaching assistants and CEOs.
- The most common skills are network security, information technology and software development.
- The fastest–growing skills added by this talent pool include data analytics, data visualisation and artificial intelligence.

TOURISM



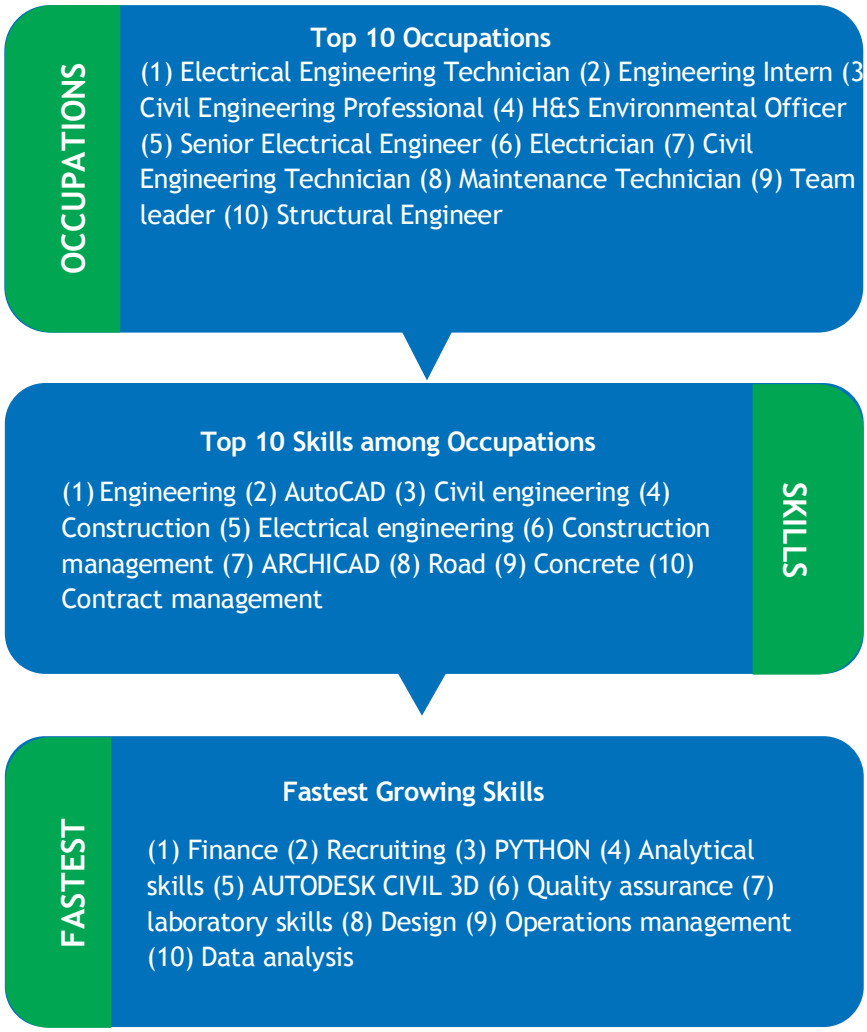
- The most common skills among professionals in this talent pool are hospitality, tourism and food & beverage.
- Other interesting top skills are social media marketing, business planning and IT.
- The top skills are hospitality, tourism, management, and food & beverage.
- The fastest–growing skills are operators, engineering, technical support, events, and barista.

TRANSPORTATION AND STORAGE



- The most common titles are Managing Director, Logistics Officers, Founders & Operation Managers.
- A good percentage are leaders within their organisations, such as Managers, CEO and founders.
- The most common skills are logistics management, aviation, and supply chain management.
- Other interesting top skills are aerospace, commercial aviation, systems engineering and aeronautics.
- The fastest–growing skills are operators, engineering, technical support, and events.

CONSTRUCTION & ENGINEERING



- The most common titles are Electrical Engineering Technician, Engineering Intern, and Civil Engineering Professional.
- The most common skills are engineering, AUTOCAD, civil engineering, construction and electrical engineering.
- The fastest–growing skills are finance, recruiting, python, analytical skills, and AUTODESK CIVIL 3D.

ANNEXURE C: OCCUPATIONS IN DEMAND LIST

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
MANAGERS		
Managing Directors and Chief Executives	Chief Executive	112001
	Regional Manager	112004
Research and Development Managers	Product development manager	122302
	Research manager	122304
Agricultural and forestry production managers	Irrigation manager	131104
	Post–harvest handling manager	131106
Aquaculture and fisheries production managers	Aquaculture production manager	131201
	Fishing operations manager	131202
Manufacturing managers	Manufacturing manager	132102
	production and operations managers	132103
Construction managers	Civil engineering project manager	132301
	Civil works repair manager	132302
	Construction evaluation manager	132303
	Construction project manager	132304
	Project Builder	132305
Mining Managers	Mine manager,	132201
	Production manager (Mine, gas, Quarry)	132202
	Quarry manager	132203
Health service managers	Medical administrator/ Director (Hospital manager)	134206
Education managers	Dean	134502
	College Principal	134501
	Head of higher learning institution	134504
	Pre–school head	134505
	Technical and vocational Training School Manager	134507

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
Hotel Managers	Hotel manager	141100
Sports, recreation and Cultural Centre Managers	Casino manager	143101
	Recreation and leisure centre manager	143103
	Sports centre manager	143105
	Theatre & Cinema manager	143106
Services managers not elsewhere classified	Travel agency manager,	143904
	Event manager	143902
PROFESSIONAL		
SCIENCE AND ENGINEERING PROFESSIONALS		
Physicists and Astronomers	Astronomer	211101
	Physicist	211102
Chemists	Chemist, Analytical	211301
	Chemist, Industrial	211303
	Chemist, researcher	211304
Geologist and Geophysicist	Geologist	211401
	Geophysicist	211402
	Hydrologist	211403
	Seismologist	211404
MATHEMATICIANS, ACTUARIES AND STATISTICIANS		
Actuary	Actuary	212001
LIFE SCIENCE PROFESSIONALS		
Biologists, botanist, zoologists and related professionals	Biologist	213101
	Botanist	213102
	Zoologist	213103
	Entomologist	213104
	Pisciculturist	213105

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
	Bacteriologist	213106
	Pathologist, plant	213107
	Pharmacologist	213108
	Animal behaviourist	213109
	Bio–chemist	213110
	Bio–medical researcher	213111
	Bio–technologist	213112
Farming, Forestry and fisheries adviser	Agronomist	213204
	Horticulture scientist	213205
	Soil scientist	213206
ENGINEERING PROFESSIONALS		
Industrial and Production Engineer	Industrial Engineer	214101
	Industrial quality control engineer	214102
	Plant Engineer	214103
	Production Engineer	214104
Civil Engineer	Civil engineer (Railway, Highway, Road and Street)	214201
	Structural engineer	214202
Environmental Engineer	Air pollution control engineer	214301
	Environmental analyst/specialist	214302
	Wastewater management engineer	214304
	Water management engineer	214305
Mechanical Engineers	Aeronautical, mechanical engineer	214401
	Agriculture mechanical engineer	214402
	Automotive mechanical engineer	214403
	Marine mechanical engineer	214404
	Mechanical engineer	214405
	Mechanical aviation engineer	214406
Chemical Engineers	Chemical engineer	214501

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
	Plastic technologist	214502
Mining Engineer, Metallurgist and related professions	Metallurgist	214601
	Mining Engineer	214602
	Petroleum and gas extraction engineer	214603
	Explosive engineer	214604
Engineering professionals not elsewhere classified	Quantity surveyor	214902
ELECTROTECHNOLOGY ENGINEERS		
Electrical Engineers	Electric power generation engineer	215101
	Electrical engineer	215102
	Electromechanical engineer	215103
Electronics Engineers	Computer hardware engineer	215201
Telecommunications Engineers	Telecommunications Engineers	215303
	Aeronautical communications engineer	215301
ARCHITECTS, PLANNERS, SURVEYORS AND DESIGNERS		
Building Architect	Building architect	216101
	interior architect	216102
Landscape architects	Landscape architect	216200
Product and garment designers	Costume designer	216301
	Fashion designer	216302
	Garment designer	216303
	Industrial designer	216304
	Jewellery designer	216305
	Product designer	216306
	Stylist	216307
Cartographers and Surveyors	Mine Surveyor	216505
	Hydrographic surveyor	216503
HEALTH PROFESSIONALS		

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
Generalist medical practitioners	Chief Medical officer	221101
Specialist medical practitioners	Anaesthetist	221201
	Cardiologist	221202
	Ear–Nose–Throat surgeon	221203
	Emergency medicine specialist	221204
	General Surgeon	221205
	Gynaecologist	221206
	Neuro surgeon	221207
	Obstetrician	221208
	Ophthalmologist	221209
	Orthopaedist plastic surgeon	221210
	Pathologist	221211
	Paediatrician	221212
	Psychiatrist	221213
	Radiation oncologist	221214
	Radiologist	221215
	Specialist physician	221216
	Urologist	221217
Nursing professionals	Specialist nurse	222102
OTHER HEALTH PROFESSIONALS		
Dentist	Dental Practitioner	226101
	Dental Surgeon	226102
	Oral and maxillofacial surgeon	226104
	Orthodontist	226105
	Stomatologist	226106
Pharmacists	Critical care pharmacist	226201
	Emergency medicine pharmacist	226204
	Mental health pharmacist	226205

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
	Nuclear/Radio pharmacist	226206
	Palliative care pharmacist	226208
	Home health pharmacist	226210
	Pharmacoepidemiologist	226223
	Pharmacoeconomist	226224
	Pharmacogenetics specialist	226226
	Military pharmacist	226227
Environmental and Occupational Health and Hygiene Professional	Environmental Health Officer	226301
	Occupational Health and Safety Adviser	226302
	Occupational Hygienist	226303
Physiotherapist	Orthopaedic physical therapist	226401
	Paediatric physical therapist,	226402
	Physical therapist	226403
	Physiotherapist	226404
Audiologists and Speech Therapists	Audiologist	226601
	Language therapist	226602
	Speech pathologist	226603
	Speech therapist	226604
Optometrists and Ophthalmic Opticians	Ophthalmic Optician	226701
	Optometrist	226702
	Orthoptist	226703
Health professionals not elsewhere classified	Arts therapist	226901
	Chiropractor	226902
	Occupational therapist	226904
	Podiatrist	226905
	Recreational therapist	226906
	Diagnostic Medical Sonographer	226907
	Medical Imaging/Nuclear Medicine Technologist	226908

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
	Radiotherapist	226909
	Medical Physicist	226910
	Clinical Perfusionist/Technologist	226911
TEACHING PROFESSIONS		
University and Higher Education Teachers	University lecturer (PhD Holder)	231001
Vocational Education Teachers	Instructor	232001
	Vocational education teacher	232002
Secondary Education Teachers	Secondary school teacher (For international schools)	233002
Primary school Teachers	Primary school teacher (For international schools)	234102
Early Childhood Educators	Pre–school teacher (For international schools)	234202
Special needs Teachers	Disabilities Special Education Teacher	235201
	Teachers of mentally handicapped	235203
	Teachers of the hearing impaired/ deaf	235204
	Teacher of the sight impaired/ blind	235205
Other Music Teachers	Guitar teacher	235401
	Piano teacher	235402
	Singing teacher	235403
	Violin teacher	235404
Other Arts Teachers	Dance teacher	235501
	Drama teacher	235502
	Painting teacher	235503
	Sculpture teacher	235504
BUSINESS AND ADMINISTRATION PROFESSIONALS		
Accountants	Certified accountant	241103
Finance analysts	Certified financial analyst	241302

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
INFORMATION AND COMMUNICATIONS TECHNOLOGY PROFESSIONALS		
Software Developer	Programmer	251201
	Software designer	251202
	Software Developer	251203
	Software engineer	251204
Applications programmers	Applications programmer	251400
Database designers and administrators	Database analyst	252102
	Database architect	252103
	Database designer	252104
Database and network professionals not elsewhere classified	Database Security Specialist	252901
CREATIVE PERFORMING ARTISTS		
The film, stage and related directors and producers	Director of photography	265401
	Documentary director	265402
	Film editor	265403
	Motion picture director	265404
	Stage director	265405
	Theatre producer	265407
TECHNICIANS AND ASSOCIATED PROFESSIONALS		
PHYSICAL AND ENGINEERING SCIENCE TECHNICIANS		
Mechanical Engineering Technicians	Aeronautics engineering technician and	311501
	Mechanical engineering estimator	311504
Mining and Metallurgical Technicians	Metallurgical technician	311701
	Mining engineering technician	311703
SHIP AND AIRCRAFT CONTROLLERS TECHNICIANS		
	Air traffic safety Technician	315501

UNIT GROUP	OCCUPATION	RNSCO CODE (2019)
Air traffic safety electronics technicians	Airworthiness engineer	315501
Aircraft pilots and related associate professionals	Flight engineer	315301
	Flight Instructor	315302
	Pilot	315303
COOKS		
Chef	Chief cook	512001
CRAFT AND RELATED TRADE WORKERS		
Aircraft engine mechanics and repairs	Supervisor, aircraft engine mechanic	723201
	Mechanic, aircraft engine	723202
	Fitter, aircraft engine	723203
BUILDING FINISHERS AND RELATED TRADES WORKERS		
Glazier	Vehicle glazier	712504
PLANT AND MACHINE OPERATORS AND ASSEMBLERS		
Mechanical Machinery Assemblers	vehicle assembler	821103

ANNEXURE D: OCCUPATIONS IN DEMAND AND SKILLS GAPS FROM LITERATURE REVIEW

AGRICULTURE

SKILLS GAPS

GENERIC

business skills / entrepreneurship / basic accounting / business management / literacy & numeracy / financing / insurance / exporting / technology / life skills (women & youth) / farm management / administration

TECHNICAL

land cropping / life stock production / poultry production / irrigation / mechanisation / seeding / fertilising / agribusiness development / animal and plant disease and pest control / animal production / Occupational health and safety

OCCUPATIONS IN DEMAND

Bee harvester

Beekeeper

Insect farmer

Farm manager

Commercial farmer

Foreman

Diesel Mechanic

Exporter

Importer

M&E expert

Nutritionist

Zoologist

Veterinarian

Agricultural Scientist

Agronomist

Programme Manager

Skills Mismatches

- Most Rwandans work either in subsistence or non–subsistence agriculture. The workforce is almost exclusively an informal workforce with no or insufficient schooling and a lack of skills.
- Unsuitable working conditions, poor wages and irregular payments, safety and health risks, improper contracts and limited training opportunities prevail.
- Subsistence agriculture is a survivalist activity.
- Sixty–six per cent of agricultural operators had attended primary level education, 26% had no education, 66% attended secondary level education, and only 14% had tertiary education. Regarding gender differences, 715% of male farmers versus 538% of female farmers received only primary education. However, beyond formal education, farmers require a range of agronomic and "farming as a business" skills to optimise land and cropping practices and make well–informed investment choices for greater production and profitability.[45]
- Subsistence farmers face complex challenges that suppress yields below potential, such as limited access to finance, insurance technology skills, irrigation mechanisation, seeds, fertilisers, and other key inputs. Land fragmentation also leads to underemployment in the agriculture sector.
- Improved agro–food training programmes and curricula are needed for specific job–related skills.
- In commercial farming, skills training is needed in new crop varieties, disease mitigation specialisation, intensification diversification and value addition.

[45] Ministry of Agriculture and Animal Resources (2018) Strategic Plan for Agriculture Transformation 2018–24. MAAR: Kigali.

MANUFACTURING, MINING & QUARRYING

SKILLS GAPS

GENERIC

Computer literacy /

numeracy and literacy /

accounting / financial skills / production / occupational health & safety / environmental awareness / inter–personal skills / time management / performance measurement / monitoring & analysis and reporting / budgeting and financial planning / customer relations / problem–solving /

TECHNICAL

Quality control / product development / occupational health & safety / data analysis / procurement / contract management / job–related (core) manufacturing skills / continuous improvement

OCCUPATIONS IN

Production/Operations Manager

Electro–mechanical technician

Supervisor

Mechanical engineer//technician

Civil engineer/technician

Industrial engineer/technician

Structural engineer/technician

Electrical engineer/technician

Electronic technician

Mechatronic technician

Mining engineer/technician

Metallurgist / Geologist

Software Engineer/ Maintenance Technician

Artisans – (electrician, plumber, boilermaker, diesel and petrol mechanic, auto–electrician, mechanical fitter, millwright, toolmaker, carpenter, welder)

Skills Mismatches

- There are occupational shortages across manufacturing, mining and quarrying industries in the technical occupations – engineers, technicians, artisans (master craftsman) and plant operators.
- There is an abundant labour supply of workers referred to as engineers, technicians, artisans (master craftsman), and plant operators, but they are not functioning at these levels. Hence an occupational mismatch between worker skills and employer demands. University and polytechnic engineering graduates are considered engineers or technicians. Still, they are unlikely to meet professional body competency or skills requirements. Therefore, these occupational levels should be properly defined.
- Likewise, workers referred to as skilled artisans do not meet the requirements regarding educational level, practical training and work experience to be labelled as artisans. Hence there is an occupational and quality mismatch in this category.
- Rwanda does not have a structured apprenticeship system based on industry–determined competency standards. Since apprenticeships are the most successful form of education to transition students from school to work and the source of decent work, better wages and skill upgrading, an apprenticeship system should be rapidly developed and implemented. It should consist of both formal and informal apprenticeships.
- Educational institutions offer programmes in the engineering disciplines at various occupational levels, but their quality and relevance to the workplace should be reviewed.
- The major problem is that TVET from upper secondary to higher education is predominantly theory. The balance between theory and practical work should be rebalanced, with the greater proportion going to practical work from TVET Levels 1 to 7.
- For example, the mining industry stated, “Limited mining and processing skills coupled with poor access to modern technology which is characteristic of most artisanal and small–scale mining (ASM) operations are some of the major issues affecting the potential growth of the development minerals sub–sector in Rwanda. The sub–sector is largely dominated by ASM and is still run by operators with limited mining skills and without efficient mining and processing technology. This presents a barrier to the sector's development”.[46]

[46] African Natural Resource Centre (2021) Assessment of the potential of development mineral value chains to support Rwanda’s economic development. African Development Bank. Abidjan.

Skills Mismatches

- Shortage of professional skills in all the stages of the minerals value chain to contribute to economic growth.
- There are manufacturing mining and quarrying key skills gaps in regulation licensing inspection and enforcement stone cutting conservation processing cooperative technical skills production health & safety blasting and environmental management.

CONSTRUCTION, WATER, SANITATION

SKILLS GAPS

GENERIC

financial skills / organisational skills / marketing / occupational health & safety / environmental awareness /inter–personal skills / programme management / performance measurement / monitoring & analysis and reporting / budgeting and financial planning / community mobilisation / problem–solving

TECHNICAL

technical testing / maintenance skills / technical planning / resource management / health and safety

OCCUPATIONS IN DEMAND

Civil Engineer / Structural Engineer

/ Construction Engineer /Civil Engineering Technician /Site Engineer / Electrician Engineer / Electrician Technician

Construction Manager / Construction Project Manager / Public Health Officer /

She&Q Practitioner / Plumber / Electrician /

Hydrogeologist / Architect

Quantity Surveyor / Engineering Managers / Mechanical

Engineers / Electrical Engineer

Hydrologist /Water Process Controller

Water Treatment Plant Technician

Skills Mismatches

- The construction sector has a qualifications and skills mismatch. It depends almost exclusively on an informal workforce (985%), many of whom have insufficient skills and education levels (85% have completed primary education or less).
- Unsuitable working conditions, poor wages and irregular payments, safety and health risk, improper contracts and limited training opportunities prevail.
- Contractors do not invest in "on–the–job" training in the ongoing projects for lower–skilled category workers due to casual work arrangements, limiting skills development and pathways among workers in this category. There is no obligation for the contractor to train workers.[47]
- Higher education graduates with construction–related qualifications struggle to find employment since their education and training do not match the skills required at the construction site.
- Water and Sanitation Plan Sector Strategic Plan 2018–2024 mentions that the sector requires more qualified artisans and other qualified personnel.
- There are skills gaps, so CPD is needed to improve employee skills, knowledge and understanding.

[47] RDB (2021) Employment and Skills Dynamics in the Construction Sector: A Sector Employment Study. RDB: Kigali.

ENERGY & ENVIRONMENTAL MANAGEMENT

SKILLS GAPS

GENERIC

business modelling / feasibility studies and project evaluation / financial skills / financing / risk analysis / management / environmental and social impact assessment / off–grid energy solutions / research / data management energy assessment and profiling / resource assessment / product development / project management / computer literacy / management / advanced it and software / leadership / occupation health & safety / project management / communication / problem–solving

TECHNICAL

Solar / Micro hydro power / Biomass power / Design, installation, testing and commissioning of targeted off grid power systems: stand–alone PV systems, Micro–hydro, biomass and mini grids / installation / operation and maintenance, electrical and mechanical engineering / Geological and Mining capacity development / integrated natural resource management / land administration / carbon counting

OCCUPATIONS IN DEMAND

Solar installer

Biomass specialist

Marketing Manager Auditor

Risk analyst

Industrial Engineering Technician

Air–conditioning and Refrigeration Mechanic

Geologist

Electrician (Engineering) Electrical Engineering Technician

Electronic Engineering Technician

Construction Project Manager

Electrical Engineer

Researchers & Scientists

*Environmental Engineer

*Environmental Protection

*Metrologists

*Hydrometeorologist

*Hydrogeologist

*Environmental and occupational health and hygiene professional

Control and instrumentation Technician

Skills Mismatches

- The sector is responsible for protecting and conserving the environment and optimising natural resources for sustainable national development.
- It covers forestry, water, land, meteorology, petroleum and gas, and environmental management.
- This area requires STEM qualifications/programmes offered by universities and short skills programmes at higher education levels.
- Energy efficiency is a relatively new policy area. It requires skills in energy efficiency requires a wide range of specialist skills and knowledge (for example, energy audits standards and labelling demand–side response).
- Traditional skills such as planning project management and commercial–specific mechanical and electrical engineering knowledge are required at operational and management levels.
- Building capacity in newer areas such as off–grid electrification and energy efficiency is required. Further capacity building must equip the private sector with skilled employees.[48]
- A study found that 53% of private–sector off–grid organisations do not have critical skills for off–grid energy.[49]
- Capacity gaps identified among energy sector staff include planning procurement project management and contract management skills. Training staff in core technical skills such as working with high–voltage lines is necessary.
- There are specific gaps in non–traditional energy areas such as efficiency and off–grid.[50]

[48] Own & Associates Limited (2017) Skills audit in Energy Off-Grid Sub-Sector: Rwanda.

[49] National Commission of Science and Technology (2014) Energy Skills Profiling: working paper 3/3. NCST. Kigali.

[50] Ministry of Infrastructure (2017) Energy Sector Strategic Plan (2018/19-2023/24). MoI: Kigali.

GENERIC

HR/ Inventory / finance / basic computer skills / customer service / interpersonal skills / numeracy and literacy / leadership / problem solving / supervisory / management / administration / decision–making / procurements / operations management / analytics / planning / finance

TECHNICAL

Job–related (core) technical skills

Skills Mismatches

- Transport is an expansive sector covering road, air and inland water transport, Logistics and storage. It is a cross–cutting sector that draws programmes and qualifications from other sectors.
- The transport sector employs mostly low–skilled people. Workers in transport and storage are dominated by people with low levels of education, representing more than 40% of the workforce.
- The skills gaps are project management, engineering design inspection and maintenance, green transport warehouse and logistics management, diesel mechanics contract negotiation and management regulation, waste management and health and safety.[51]

[51] RDB (2018) Report of Skills Audit in Transport and Logistics Sector in Rwanda. RDB: Kigali.

FINANCIAL SERVICES

SKILLS GAPS

GENERIC

computer literacy skills / advanced excel skills /

interpersonal / customer services / communication (online & interpersonal) / time management / negotiation / self-management / critical thinking / problem solving / critical thinking and analytical skills / teamwork / supervisory / project management / decision making / administration / legal, governance and risk / marketing and sales

TECHNICAL

financial inclusion / financing / managing payment systems /risk management / knowledge of regulations / wealth management / investing / actuarial / cryptocurrency / blockchain / AI

OCCUPATIONS IN DEMAND

Actuary / Call Centre Agent

Auditor / Actuary

Bookkeeper / Financial Investment Advisor

Compliance Officer / Sales & Marketing Manager / Credit Analyst

Insurance Loss Adjustor / Risk Analyst

Software Developer / Programmer Analyst

Database Designer and Administrator / ICT Security Specialist / ICT Systems Analyst

Data Management Manager / Compliance Officer / Applications Programmer

Data Scientist / Computer Network and Systems Engineer / CEO / Accountant / Financial Manager /

Skills Mismatches

- There is a dire shortage of high–level skills in finance investments, risk credit financial products, accounting and law.
- Most Rwandan businesses are SMEs requiring financial management financing, business planning and cash–flow management skills.

INFORMATION TECHNOLOGY

SKILLS GAPS

GENERIC

customer service / interpersonal skills / leadership / problem solving / teamwork / management / administration / decision–making

TECHNICAL

internet of things / big data and analytics / block chain artificial intelligence / computer or digital literacy / cybersecurity / drone technology / 3D printing / network administration / software development / JAVA / PYTHON / LINUIX / SQL / data science / cloud computing

OCCUPATIONS IN DEMAND

ICT Service managers / System analyst / Application Programmer

Cyber Security Specialist / Media producer

Multimedia specialist / Business process analyst

ICT Project Manager /Software and multimedia developers and analyst / Software programmer

Coders / Software Developer

ICT operations and user support technician

Communications technician /_Database specialist and systems administrator / Computer Network and Systems Engineer / Telecommunications Technician / Telecommunications Engineer /

Electronics Engineer /

Electronic Engineering Technician / Software Engineer / I CT Manager

Skills Mismatches

- Rwanda has made impressive strides towards ICT development and developing ICT as a cross–cutting enabler for developing other sectors.
- ICT skills mismatches occur at all levels. The country has a low digital literacy rate of 84%, and citizens lack the skills to use smart devices to access digital services. Mismatches exist in the quality and quantity of skills in the ICT workforce.
- Massive investment should be made to furnish digital skills and empower citizens in digital literacy to allow consumption of ICT–enabled services
- Market–oriented skilled ICT professionals in software and programming are needed

TOURISM AND HOSPITALITY

SKILLS GAPS

GENERIC

Tourism marketing and advertising / Tour operations / travel marketing / website management / digital marketing / effective communication and feedback management / product distribution and sales skills / customer care

TECHNICAL

Tour guiding:

Nature conservation / communication skills /general knowledge on historical, geographical and cultural tourism / first aid training / specialised training in bird watching, wildlife and tourism /

Tourism packaging and booking:

Corporate governance / business growth

OCCUPATIONS IN DEMAND

Global Marketing & Sales Manager

Food & Beverage Manager

Hotel Manager

Chef

Barista

Confectionary Baker

Graphic Designer

Researchers

Tourism Trainer

Market Analyst

Skills Mismatches

- Most tourism and hospitality workers require short training courses to improve their skills.
- Tourism graduates tend to lack soft skills such as communication proficiency in English, customer care and product/services knowledge.
- Tours and travel marketing, website management, digital marketing, effective communication and feedback management, product distribution, sales eventing, and ICT skills are also needed.

WHOLESALE & RETAIL

SKILLS GAPS

GENERIC

computer literacy / numeracy / literacy / leadership skills/ mentoring and coaching/ planning and project management/ conflict management/ business management/ financial management/ performance management/ human resource management / customer service/ communication skills/ numeracy and literacy

TECHNICAL

sales skills/ conflict resolution skills financial skills/ product knowledge/ visual merchandising/ first aid/ project management/ marketing skills/ covid–19 safety/ digital skills

OCCUPATIONS IN DEMAND

Confectionery Maker

Baker

Chef

Industrial Products

Sales Representative

Financial Manager

Accountant

Contact Centre Manager

Wholesale and Retail Trainers

Store Managers

Skills Mismatches

- Most retail enterprises are SMEs and micro–enterprises in the informal sector.
- Most formal and informal workers require short training courses to improve their business skills.
- There is a lack of customised retail short course training for small and medium enterprises in bookkeeping, customer service, money and credit handling, premises maintenance, stock control marketing, sales cost control, buying storing, health and safety and pricing.

EDUCATION

SKILLS GAPS

TVET trainers' pedagogical skills / critical thinking / creativity and innovation / research / problem-solving / TVET trainers' technical skills / curriculum development / module writing / classroom management / assessment strategies / teaching methods /

OCCUPATIONS IN DEMAND

Teacher - Early Childhood / Secondary Education (In fields of Mathematics, English, French, Biology, Chemistry, Physics, Geography, Economics, ICT, History)

Professionally Qualified TVET Trainer

Teacher - Special Education, including the blind, deaf and mentally disabled

Education Manager (Pre-Primary School)

- TVET lecturers in

Science, Technology, Engineering and Mathematics (STEM) teachers/lecturers at all levels /**ICT Teachers**

Education Methods Specialist / Language teachers in English, French and Swahili

Skills Mismatches

- There is a shortage of STEM teachers and lecturers across the education system.
- TVET trainers lack technical trade skills to offer quality learning experiences.
- There is also a shortage of education managers in education institutions.
- Teachers and lecturers lack continuous professional development to upgrade their subject knowledge and pedagogical skills.
- Teacher shortages are also cited in the Occupations in Demand List.

HEALTH

SKILLS GAPS

GENERIC

TECHNICAL

adult primary care / advance HIV and AIDS counselling / basic antenatal care plus / community stakeholder engagement / counselling and risk behaviour / dread disease and HIV and AIDS awareness / HEALTH information, indicators and analysis / HIV counselling and rapid testing / pharmacy management / research methods for health / survey data collection and analysis for health research / wellness for effective leadership / effective patient records management in hospitals and clinics / basic emergency obstetric and new–born care at health centre level / comprehensive emergency obstetric and new–born care at hospital level / maternal, neonatal, child and adolescent sexual and reproductive health / counselling skills / side effects of contraceptives / diagnostic capacity to detect outbreak for emerging and non–emerging diseases of public health / epidemic intelligence / dietary and complementary feeding practices / integrated education on SRH (target groups: young and adolescents) / scale up post–partum FP education / *childcare

OCCUPATIONS IN DEMAND

NOTE: all types of health professionals are in demand

Doctors and nurses specialising in Comprehensive Emergency Obstetric, New–born Care, Maternal and Neonatal. Public health specialists as well as other medical disciplines

Medical Practitioner (General)

Medical Practitioner (Specialist)

Physiotherapist

Dentist

Hospital Manager

Radiographer

Health Informatics Specialist

Nurses

Enrolled nurse

Pharmacist

Psychiatric nurse

Medical officer

Skills Mismatches

- There is a shortage of health professionals across most health disciplines
- Healthcare requires continuous professional development (CPD).
- The health sector is expected to create more jobs and employment opportunities with the projected increase in health services. Hence the sector requires more health professionals.
- There is a need for health workforce skills by strengthening comprehensive hands–on pre–service training regulation of clinical practice and skills enhancement by applying in–service mentorship.
- Outstanding challenges remain the gaps in skills mix, a high staff turnover and limited career development opportunities for health professionals at different levels.[52]

[52] Ministry of Health (2018) Fourth Health Sector Strategic Plan 2018 – June 2024. MoH: Kigali.

PUBLIC SERVICE & ADMINISTRATION

SKILLS GAPS

GENERIC

Service delivery / Computer literacy / leadership and management / problem solving / time management / project management / ethics / customer service / record keeping / remote working / data analytics

TECHNICAL

policy development / change management / governance and risk / public financial management / administration / M&E / records management / programme and project management / capacity building / finance / data analysis / policy analysis

OCCUPATIONS IN DEMAND

CEO

Programme Manager

Project Manager

M&E Specialist

Finance Officer

Lecturer

Professor

Development Advisor

Researchers

Procurement Officer

Skills Mismatches

- Public sector employees require continuing professional development in areas related to their work, including ICT skills, communication, negotiation management, teamwork, project management, quality control, customer service administration and time management.

SKILLS RWANDA

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