Beyond Tax Breaks:
Exploration of Georgia's Dual IT Ecosystem

A Research Paper presented by:

Elizabeth Akhvlediani
Georgia

in partial fulfilment of the requirements for obtaining the degree of
MASTER OF ARTS IN DEVELOPMENT STUDIES

Major:

Governance and Development Policy (GDP)

Double Specialization:

Local Development Strategies
Public Policy and Management

Members of the Examining Committee:

Dr. Georgina Gomez
Dr. Farhad Mukhtarov

The Hague, The Netherlands
December 2022

Disclaimer:

This document represents part of the author's study programme while at the International Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

Inquiries:

International Institute of Social Studies
P.O. Box 29776
2502 LT The Hague
The Netherlands

t: +31 70 426 0460
e: info@iss.nl
w: www.iss.nl
fb: http://www.facebook.com/iss.nl
twitter: @issnl

Location:

Kortenaerkade 12
2518 AX The Hague
The Netherlands

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

B2B	Business to Business
B2C	Business to Client
B2G	Business to Government
BSc	Bachelor of Science
BPO	Business Processes Outsourcing
BTU	Business and Technology University
CIT	Corporate Income Tax
COVID-19	Corona virus disease 2019
DEA	Data Exchange Agency
Diya	Ukrainian Portal for Digital Public Service Delivery
DRIVE	Digital Research and Impact for Vulnerable E-citizens
EE	Entrepreneurial Ecosystem
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GEL	Georgian Lari
GENIE	Georgian National Innovation Ecosystem
GeoStat	National Statistics Office of Georgia
GITA	Georgia's Innovation and Technology Agency
GIZ	Deutsche Gesselschaft für Internationale Zusammenarbeit
GNI	Gross National Income
GNTA	Georgian National Tourism Administration
GoG	Government of Georgia
GovTech	Government Technology
GPN	Global Production Network
GVC	Global Value Chains
HoReCa	Hotel Restaurant Café
ICT	Information Communication Technology
IDFI	Institute for Development of Freedom of Information
IFC	International Finance Corporation
IFI	International Financial Institutions
IPO	Intellectual Property Ownership
IT	Information Technology
KBE	Knowledge-based economy
LEPL	Legal Entity under Public Law
MNCs	Multi-National Corporations
MoESD	Ministry of Economy and Sustainable Development
MoU	Memorandum of Understanding

MRO	Maintenance Repair Overhaul
NICs	Newly Industrializing Countries
OECD	Organization for Economic Cooperation and Development
PPA	Production Process Automation
R&D	Research and Development
RS	Revenue Services of Georgia
SME	Small and Medium-sized Enterprises
STEM	Science, Technology, Engineering, and Mathematics
TH	Triple Helix
TNCs	Trans-National Corporations
US	United States
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax
VZE	Virtual Zone Entity
WB	World Bank

Acknowledgements

I would like to express my gratitude to the LEPL International Education Center Georgia whose financial support made it possible for me to access master's education at ISS.

Deep appreciation for Dr. Georgina Gomez as my supervisor, whose insightful, committed, inspiring, and motivating guidance kept me engaged throughout the research process.

Special thanks go to the development consulting company PMCG for their continued support to my professional growth and the assistance during the field phase of this research.

Huge thanks are in order for all my respondents, whose trust and willingness for an open and honest conversation during the summer holidays made this research possible.

Finally, I would like to emphasize my deepest gratitude for my mother who remains my strongest pillar in all my academic endeavours; and my closest circle, who have shown a great deal of love, patience, kindness, and support throughout the entire writing period.

Abstract

The study focuses on the policy vision of the Government of Georgia (to support development of Georgia as an IT hub. To encourage IT development locally, Georgia offers tax benefits to ICT companies that qualify for 'International Status'. The policy measures have visibly affected the local market – creating an uneven playing field for the local companies and the ones with 'International Status'. The research explores the ways in which the state intervention in the form of providing tax breaks to IT companies with the 'international status' is shaping the local entrepreneurial ecosystem towards Georgia's development as an IT hub. The question is addressed through a single case study technique and the analysis of primary data collected through qualitative interviewing technique. Data is analysed in terms of the components of the Entrepreneurial Ecosystem framework and discussed into three aggregate dimensions: (i) Government Policy; (ii) Local Ecosystem; and (iii) Inclusion in Global Value Chains. The research concludes that the current state measures have created two closed ecosystems of international and local companies, where local companies are facing the risk of being driven out of the market. The paper proposes recommendations to encourage partnerships through participation in synergies created by the dynamics of two ecosystems for the achievement of the policy objective.

Relevance to Development Studies

IT development and subsequent digital transformation are at the forefront of the global development agenda. It is accompanied by a shift to the economy led by knowledge-intensive innovation development. This provides an opportunity for developing countries to identify a niche to participate in global value chains through economic activities based on value added by knowledge creation and generation. Through targeted policy efforts, the state can become an enabler, gatekeeper, and an entrepreneur, all at the same time. The current study contributes to the body of knowledge on policy for IT development with a case study on Georgia.

Keywords

Entrepreneurial Ecosystem; Global Value Chains; Innovation Development; IT Hub; Knowledge-based Economy; Local Economic Development; Mission-oriented Policy.

Chapter 1
Making of a Digital State

1.1 Georgia – an Aspiring IT Hub

On a narrow steep street in Tbilisi, Georgia there are two recently opened bars across from one another. Every night, they attract two very distinct groups of demographics – predominantly young, somewhat hip, white, middle-class, male who gather after a full day's work. Conversations circle around crypto, blockchain and other buzz tech topics not so understandable to the mainstream crowds. It would not escape passer-by's attention that one bar attracts the Russian-speaking, and the other strictly English-speaking crowds. Though separated by one narrow road with the capacity to pass one row of cars in one way direction, these two groups do not interact and stick to their microcosms in the respective bars. For the population long residing in the neighbourhood it is clear that this phenomenon is a mere social reflection of the larger development that has emerged within the past two years: Tbilisi became a host to an increasing number of international IT professionals. This observation is an outcome of a larger scale initiative by the Government of Georgia (Government of Georgia, 2014) to put Georgia on a map as an IT hub with an underlying purpose to shift to a knowledge-based economy. Policy interventions and tax incentives (Matsne, 2020) to help achieve the goal in turn have resulted in the two closed ecosystems that function within their respective contexts with almost no interlinkages and participation in shared synergies.

The present paper is a study of the effects of the state's interventions for local IT ecosystem development towards achievement of its goals (Government of Georgia 2014; Ministry of Economy and Sustainable Development of Georgia, 2017). The first chapter of the paper lays down the global context of the research: political and economic background to knowledge-base and IT developments. The second chapter discusses chronological background and the efforts by the Government of Georgia for IT development. The global and local contexts are followed by relevant literature review and theories that form the basis to the developments under question. Carlota Perez's 5th Technological Revolution (Perez, C., 2019) sets the context for the discussion, along with Mariana Mazzucato's Entrepreneurial State (Mazzucato, M., 2011) to conceptualize the state intervention, as well as Schumpeter's Creative Destruction (Schumpeter, J.A., 2013) to understand the ongoing process, and Mazzarol's Entrepreneurial Ecosystem Framework (Mazzarol, T., 2014) as an analytical framework. The following chapter discusses the primary data collected during the field visit through face-to-face interviews with the subsequent analysis as they relate to the nine components of the Entrepreneurial Ecosystem Framework (Ibid., 2014). Finally, discussion on data connects the key findings to the theory and conclusions along with the policy to close the study. Inward knowledge transfer and integration in global value chains (Roper & Grimes, 2005; Helmsing & Vellema, 2011) will be the key concepts to draw the conclusions of the study. The study will show the outcome of the state efforts to encourage endogenous innovation development. The conclusion will form the basis for the policy recommendation to close the last chapter.

In their joint work, Carlota Perez and Mariana Mazzucato (2015) write that "the advanced world is facing a crucial moment of transition." Global trend to digital transformation is in the context of the climate crisis adaptation. In the world facing constant challenges, innovation is a driver of this change. But innovation is created as a knowledge product due

to shifting paradigm in the context of green transition. Innovation-led growth takes place in knowledge societies, where knowledge creation is a result of positive interrelation between the public institutions, industry, and academia that align for the win-win playing game between the business and society (Perez, C., 2021). In order to facilitate the paradigm shift required structural change to adopt innovative policy and institutional innovation, driven by the state.

From academia to donor organizations, there is a global rush to understand and define the transition to knowledge-based innovation development. OECD suggests that "a Knowledge-based" view focuses on the interactive processes through which knowledge is created and exchanged both within and outside firms and other organisations" (OECD/Eurostat, 2005, p. 28). The report emphasizes the importance of high skills and knowledge dependence in the process (Ibid., 2005). MIT Lab for Innovation Science and Policy couples innovation with entrepreneurship, defining it as the "process of taking new-to-the-world ideas from 'inception to impact'…" (whether economic, social or environmental impact)" (Budden & Murray, 2018, p.3). For them, the high-impact innovation is born by the innovation-driven enterprises (Ibid., 2018). The literature offers a positivist view in terms of relations of social institutions. Policy reform agenda largely encourages shift to a knowledge-intensive innovation technology development worldwide. In criticism, Jessop (2005) refers to a knowledge-based economy (KBE) as a "meta-object of governance (and, indeed, meta-governance)" (Ibid., 2005, p.1).

While what and why of the transition to a KBE are clear, it remains a great puzzle, and especially to the state (for example, Abasli, I. in EPF, CRRC, 2018), to understand how to drive this shift. Mazzucato (2017) explicates that the shift to KBE can only be facilitated through a structural change. This makes the role of the state relevant to our discussion. From approaches to state as a developmental (case of East Asian Tiger economies) (Evans. P. 1989), or Entrepreneurial (Mazzucato, M., 2011), task is to understand the causality of interventions towards the effective transition. Picking winners or assuming risks, through exploring distinct social institutions constituting the relational economy, the paper explores the effects of state measures towards creating a knowledge society. It discusses state-led innovation development policy and its effects of a creative destruction for some, and a destructive creation for the others (Mazzucato, M., 2013).

1.1.1 Leading to a Digital Transformation

As a developing country and a young democracy, Georgia's recognition as an independent state is largely due to the support from bilateral and multilateral development organizations. Since gaining independence from the Soviet Union in 1991, reforms towards wealth generation through market liberalization efforts to attract Foreign Direct Investment (FDI) have constituted a principal part of Georgia's democratic reform agenda. Economic production and participation in global value chains are the key drivers of the development strategy (Government of Georgia 2014; Ministry of Economy and Sustainable Development of Georgia, 2017). In this vein, Georgia has been implementing reforms to remove administrative barriers to trade and create an enabling environment for doing business. These efforts have put Georgia as one of the top countries in terms of ease of doing business as indicated by the World Bank (WB) rankings (World Bank, 2020). While creating demand through attracting business investments, the country also had to identify available supply for making the targeted investments more attractive.

With the global trend in tourism development, since 2004 there has been a push to brand Georgia as a key tourist destination, advertising its natural and historical landmarks as well as exquisite cuisine and unique culture emerging at the crossroads of the East and West as the main points of attraction. Tourism-based economy has stimulated development of hospitality and the entire HoReCa (Hotel/Restaurant/Café) industry and tourism-related services. With the small grants as part of financial assistance from development organizations, a big part of the population has transformed their activities to cater to the tourism economy, from renovating their houses into guest hotels, to offering guided tours. Tourism-driven economy has also introduced a shift from the traditional view of valuing education from academia to short courses targeted to economic value generation in a short term. A range of donor organizations have supported the design of short courses or trainings targeted at specific sectoral economic activity generation (for example, UNDP, USAID, and etc.). The efforts are underway to introduce and popularize vocational education as a rewarding educational path that will provide employment through a short-term time and financial investment as a response to the skills demand on the labour market (Government of Georgia, 2014).

With the world progressing into what Carlota Perez refers to as the Fifth Technological Revolution (Perez, C., 2019; Idib., 2020), the shift to the Knowledge-Based Economy (KBE) has become more prominent, especially in times of increased demand for resilience amid climate crisis and the shift to sustainable and green growth stemming from it (Ibid., 2019). It presents us with a shift in paradigm to demonstrate a flexible approach to production activities, led by knowledge-intensive innovative technology development (Ibid., 2019). In attempts to mainstream innovation, the Organization for Economic Cooperation and Development (OECD) has published a manual for measuring innovation as a prerequisite for generation, exploitation, and diffusion of knowledge for economic growth, development, and wellbeing of the nations (OECD/Eurostat, 2005). The Manual defines the KBE in terms of knowledge generated for innovative technological development for facilitating economic growth for the economic prosperity and wellbeing (Ibid., 2005). Besides OECD, knowledge generation and innovation development largely constitute donor agenda for development assistance to the countries with transitional economies as an overarching framework for development (OECD, 2020).

In retrospect, the shift to alternative ways of viewing knowledge in Georgia has been in the making for almost two decades. Moreover, the shift has become more prominent with the declared move by the Government of Georgia (GoG) from tourism-based economy to knowledge-based economy in the context of knowledge-led innovation technology development for economic growth (Mazzucato & Perez, 2015). To this end, the national government with the help from donor organizations (for example, World Bank 2013) has mapped skills provision against the demand on labour market (so-called skills mismatch), as well as possible sectors for cluster creation. As a result, it was possible to identify intellectual services, business consulting, and architecture & design as key sectors for further development. Intellectual services entail outsourcing of business processes (PMCG, 2021), in some cases including provision of full back-office services such as quality support, customer services, etc. for major international brands. Intellectual services outsourcing enables participation in global value chains. At the same time, business processes outsourcing entails less capital spending by the state and is therefore considered as a low-risk investment.

In 2018, GIZ under the project 'SME Development and DCFTA in Georgia' through the financial support from the European Union has supported the establishment of the first ICT cluster in Georgia. With the multi-sectoral economic development vision, COVID-19

pandemic has played a key role in mobilizing efforts in the ICT as a sector of targeted focus. It has been observed that while certain business operations had to be suspended during the pandemic, COVID-19 has only aided digital transformation by illustrating the need to modernize business processes through digitizing operations. What may have seemed as scattered attempts at stimulating targeted economic activities in ICT sector, have come together during and post COVID-19 economic recovery and regeneration. During COVID-19, the GoG introduced a programme 'Work from Georgia' that offered a residency to digital nomads. 30% of the programme beneficiaries were IT professionals. In parallel with the 'Work from Georgia' programme, the GoG was already running a targeted programme 'Virtual Zone Entity' (VZE) that exempted IT business operating from Georgia but working internationally from Value Added Tax (VAT) of 18% and Corporate Income Tax (CIT) of 15%.

The targeted interventions are in line with the government strategy to transform Georgia into Information Society, or Technological hub. With the global and regional 'race to the bottom' to offer a convenient business environment for attracting investments, there is an attempt to put Georgia on a map as an ICT hub. Similar to the tourism-driven economy, shift to innovation-led economy is also accompanied by a shift in mindset and approaches (Perez, C., 2019). Abundance of jobs on a global ICT market rewards limited time and financial investment in short courses. COVID-19 pandemic has also largely contributed to this transformation, creating a shortage of otherwise popular jobs for higher education graduates, while opening opportunities in the ICT sector. In turn, the value is created through short trainings with the promise of almost immediate high wage employment opportunity.

Chapter 2 Towards Liberal Market Economy

2.1 Introduction

Since October 2020, in order to contribute to the country's competitiveness and establishment as the regional IT hub, the Georgian government offers companies operating in maritime and Information and Communication Technologies (ICT) sectors to obtain status of International Company and enjoy tax incentives in Georgia (Matsne, 2020). Ever since, over 40[1] ICT focused companies, among which the largest ICT companies, such as EPAM systems (originally founded in Belarus, but presently operating as a U.S. company) established subsidiary companies in Georgia and relocated their staff in the country (Revenue Services of Georgia, 2020). Now Georgia is seeing an increasing expat population of international development engineers (Demytrie, R., 2022) who concentrate in its two biggest cities – its capital Tbilisi and a seaside town Batumi. Considering that tax incentives for ICT companies are already offered in other developed countries (Estonia – most comparable context to Georgia, Israel, Finland, Ireland, to name a few (based on Roper and Grimes, 2005), the research investigates what exactly attracts the companies and their staff to Georgia. Specifically, it looks into whether this new ICT community is turning into a network; the entrepreneurship development opportunities created and provides recommendations for the Georgian government to target its policies towards making Georgia an IT hub.

2.2 Attracting FDI for Development

Small and Medium-sized Enterprise (SME) development strategy of Georgia 2016-2020 (adopted in November 2015) emphasizes that as a result of improvement of tax administration, Georgia has the most liberal tax jurisdiction in Europe (Ministry of Economy and Sustainable Development of Georgia, 2017). Since 2004, the country has been implementing reforms to remove administrative barriers and burdens for attracting FDI and encouraging entrepreneurship development with the view to economic development (Ibid., 2017).

Georgia's history is characterized by a series of challenges in terms of regional and local conflicts that have been hindering the country's development. Since the 1990s, after the restoration of independence from the Soviet Union, Georgia has been on a path to build an independent, market-based economic system (Government of Georgia, 2014). To this end, mainly through the financial assistance from multilateral and bilateral organizations, a series of institutional and economic reforms have been implemented. The reforms have been implemented within the framework of transition to liberal and free market economy that culminated in Georgia ranking 7th in the World and 1st in the region in the World Bank's Doing Business Report 2020. The Index measures administrative barriers in terms of the ease of registering business in the country (World Bank, 2020).

Socio-economic development strategy of Georgia, or Georgia 2020 (adopted in June 2014) is a strategy document developed by the Government of Georgia to present a vision for the country's long-term development and inclusive economic growth. The Strategy builds on the three main thematic areas: (i) private sector competitiveness, (ii) human capacity development, and (iii) access to finance. Each of these three areas have their sub-areas, with

[1] Data based on Revenue Services of Georgia website as of 01 September 2022.

the investment and business environment, innovation and technologies, export growth, infrastructure development and realization of the country's transit potential falling under the first point of private sector competitiveness (Government of Georgia, 2014).

While top rankings in international indexes have helped the country gain recognition and spark interest as a place of investment among international corporations, legal burdens related to property rights and dispute resolutions and arbitration remain top areas to be addressed by the state. According to the World Bank measurements in terms of GNI per capita, Georgia is an upper middle-income country. Despite graduating from the lower middle to upper middle income category, poverty and unemployment remain as the two key challenges to be tackled in the country (Government of Georgia, 2014). With a view to overcoming these socio-economic problems and in line with the government strategy to support entrepreneurship development and investment attraction for economic growth, Georgia offers tax incentives for international companies to relocate to Georgia in the select fields (Matsne, 2020).

In October 2020, Prime Minister of Georgia signed a decree to grant tax reductions, and in certain aspects tax exemptions to international enterprises operating in maritime and ICT sectors in Georgia. International companies complying with the new law are subject to income tax of 5% (instead of 20%), dividend tax of 0% (instead of 5%), corporate income tax (CIT) of 5% with availability to reduce the CIT base to 0% (instead of 15%), and property tax of 0% (instead of 1%). Enterprises can enjoy tax benefits if they comply with the types of Permitted Activities in the two sectors stipulated by the Law, and if they comply with the criteria for obtaining a status of an International Company. Main requirements for obtaining the status of international company are: 2 years of experience relevant to carrying out permitted activity (experience can also be demonstrated by a shareholder of the enterprise); and generation of 98% of revenue abroad (Matsne, 2020).

According to the Revenue Services of Georgia (RS), since the adoption of the Law, over 40 enterprises operating in the maritime and ICT sectors have been granted a status of International Company, the very first one to establish its subsidiary company being the LTD EPAM Systems Georgia (Revenue Services of Georgia, 2020). Originally established in Belarus, with the annual revenue of $9bln the company is now listed on a New York stock exchange. Notably, EPAM has over 45 offices across the world with locations in the Americas, Europe, Middle East and Asia, and Australia and the Pacific. Company offers relocation support to the interested staff and highlights cultural aspects of Georgia as points of attraction for relocation. EPAM has been one of the largest growing IT companies in Georgia since 2022, growing its staff five times in the six months from February to August.

2.2.1 Mission-oriented Institutions

As part of its SME development and socio-economic development strategies, the Government of Georgia has established two agencies to support entrepreneurship development. Georgia's Innovation and Technology Agency (GITA) and Enterprise Georgia (Entrepreneurship Development Agency) are mandated under the Ministry of Economy and Sustainable Development of Georgia (MoESD) and offer programmes to support business climate and competitiveness in the country. Recently, GITA has partnered with EPAM Systems to train 3,000 IT specialists and signed a Memorandum of Understanding (MoU) to ensure employment of the training programme participants. Such support programmes, underlying

rationale, and their implications on the sector development are further discussed in the sections below.

GITA's main objective is to support development and commercialization of innovative and technological knowledge for mainstreaming into all economic sectors of Georgia. To this end, the agency offers co-working and techpark spaces, FABLAB with access to modern tech, start-up financing and training programmes.

Established under the MoESD in 2014, the main objective of LEPL Enterprise Georgia is to "promote entrepreneurial culture" through services for private sector development, improvement in Georgia's investment climate, and export promotion for local business. For the achievement of these goals, the agency targets three main areas: (1) Business support (local production), (2) Export promotion, and (3) Investment. Business component provides assistance to entrepreneurs with creation of new and expansion of existing enterprises. The export promotion services of the agency are targeted at increasing competitiveness of local business through producing goods for exports on international markets. The investment division serves to attract, promote and develop FDI in Georgia with the agency acting as a middleman between foreign investors and the GoG. The agency offers targeted sectoral programmes to support production development of Georgian SMEs.

Since 2003, the Georgian government has been implementing a series of institutional reforms for democratic governance and economic growth. These development reforms include a vision for the country's branding based on its major activities contributing to economic growth. In this sense, a tourism-based economy has been one of the main economic activities and the development of the hospitality sector one of the key focuses of the country's developmental vision. Country's liberal economic reforms have played a key role in the development of the sector, especially in terms of ranking high up in the World Bank's Doing Business Report (World Bank, 2020), and liberalizing tax jurisdiction to attract FDI and capital inflows (Government of Georgia, 2014). The policy has successfully attracted the major hospitality brands from the industry, indicating a stable and favourable environment for doing business in Georgia.

For almost the past two decades, international development agencies have been offering small grants to encourage local tourism development. The support has included turning private housing into guest hotels, providing guided tours, and opening cafes, bars, and restaurants locally. The Georgian National Tourism Administration (GNTA) runs active tourism campaigns to advertise Georgia internationally as a tourist destination among select countries. Booming casino industry targeted to the visitors from neighbouring countries, where gambling is prohibited; nightlife with famous clubs for a relatively younger segment of European tourists; summer and winter resorts with winemaking and cultural highlights are some of the key points of tourist attractions. Focus on tourism economy has had a ripple effect on local economic development opportunities. Big cities have gone through a transformation, changing economic activities, lifestyle, and habits of local communities.

While tourism remains one of the key drivers of the local economy, in the past 5 years the country has been expanding its business support activities on outsourcing of intellectual services, including customer services, web and quality support. The two agencies set up under the MoESD – Enterprise Georgia, and GITA serve the purpose of supporting investment

attraction to the country, providing business support activities, and encouraging start-up eco-system improvement through trainings and matching grants support.

Chapter 3
Theoretical Conceptualization of Case Study

3.1 Introduction: Shift to a knowledge-based economy

According to Carlota Perez (Perez, C., 2019), the world is currently in the age of the 5th Technological Revolution. Following the four preceding milestones in the economic history of the world – The 'Industrial Revolution' (machines, factories, canals) that began in Britain in 1771, followed by the Age of Steam, Coal, Iron and Railways in 1829 in Britain as well, the Age of Steel and Heavy Engineering (electrical, chemical, civil, naval) starting in Britain, USA, and Germany in 1875, the Age of Automobile, Oil, Petrochemicals and Mass Production in 1908 in the USA, 1971 has brought about the Age of Information Technology and Telecommunications and caused the series of changes in approaches to processes. The shift in paradigm that accompanies this technological disruption entails a techno-economic and socio-institutional shift from a continuous adaptable dynamic innovative environment based on learning and human capital. This provides a change in approach from fixed plans on production, to a continuously evolving environment shaped by knowledge and innovation (Ibid., 2019).

Since the end of World War II, the new global political order (Sachs, 2010) has been focused on encouraging scientific and technological advances and integrating related activities for stimulating economic production and growth. Endogenizing Research & Development (R&D) for facilitating innovation-led technological development (Roper & Grimes, 2005) has resulted in a shift to knowledge-intensive economic activities, progressively characterizing the economy as based on knowledge. The concept of 'Knowledge-based Economy' (KBE) (Jessop, B., 2005) has been pushed by the development agencies, who were also drivers of a so-called Big D development (Lewis, D., 2019) led by the Global North countries in the Global South countries. The approach is a more prescriptive policy-making (Cairney, P. 2012) that takes everything Western as a benchmark and aspirational standard for developing countries of the Global South.

In their efforts to catch up with the developed countries, many developing countries have been on a path of democratic reform implementation, as part of an agenda set by the development institutions and banks. Another wave of technological revolution that emerged with the end of the War, brought a shift to science-driven technology development that was grounded in knowledge-led innovation and technological transformation of the second half of the 20th century (Perez, C. 2019). Such developments have largely increased the global economic production, circulation, and growth. Global dependence in economic production has created unequal power dynamics between the areas with the high concentration of knowledge, i.e., ownership in the high value-added sectors of the upper-end of the value chains, and areas of skills-input that are usually on the bottom of global value-chains. This division further deepened the gap between the developing and developed countries, with knowledge ownership lying in the developed countries of the Global North (Lewis, D. 2019).

3.1.1 Knowledge-led innovation development

Perez's characterization of the current technological transformation is carried out in a "smart, green, fair and global" (Perez, C. 2020) way. Meaning that the fixed approach to product creation is changing to the focus on services provision, and the fair income distribution with benchmarks for the wages, and prices. The IT Revolution brings a human-centered type of growth, hence the shift to knowledge-based, or knowledge-led innovation and economy. In Perez's words, "Traditional parties divide and new movements emerge. Success, for better or for worse, requires understanding and shaping the new potential" (Ibid., 2021). She further identifies two sets of policies - (1) Policy Innovation to change the context, and (2) Institutional Innovation to modernize government. The former refers to creating an ecosystem with innovative tax systems and focus on sustainability and investment; whereas, the latter refers to shifting the focus towards transformation that puts knowledge-led innovation at the center, along with knowledgeable government and digitized public service delivery. The task amid the fifth technological revolution that sets a context for current processes, should be to "set up a positive sum game" between business and society in advanced, emerging and developing countries, humanity and the planet. Important role of the government in aiding the creation of this positive sum game is emphasized by Perez (Ibid., 2021).

Then, how should we understand the positive sum created by the interconnectedness of the actors, and how exactly should the government facilitate this process? The role of the state in creating the positive sum game as an interconnection between all actors, sides with the proposition of institutional innovation and processes accompanying it. Understanding of the current context as a unity of processes resulting in total gains is driven by knowledge-led innovation and economic activity produced by it (Budden & Murray, 2018). KBE is the term that has been coined by the OECD Oslo Manual: Guidelines for Collecting and Interpreting Innovation to "describe trends in advanced economies towards greater dependence on knowledge, information and high skill levels, and the increasing need for ready access to all of these by the business and public sectors" (OECD/Eurostat, 2005). This approach is based on creating an ecosystem that is grounded in knowledge as a basis for the functioning of the society. The OECD Guidelines put emphasis on the knowledge spillovers "within and outside firms and other organisations" (Ibid., 2005). Nevertheless, the 'knowledge-based' should not be viewed merely in terms of spillovers, but rather as foundation and a driver of the socio-economic-institutional system (Perez, C., 2019; Ibid., 2021).

3.1.2 Triple Helix Model: Endogenizing Knowledge

There is a body of literature that deals with understanding the knowledge-based economy, one of the most prominent being the Triple Helix (TH) model (Leydesdorff, L., 2012) which explains relations between the University, Industry, and Government. The TH model can be used to understand relations and events in a knowledge-based economy (Leydesdorff 2010, as cited in Lawton Smith & Leydesdorff, 2014) (see figure 1 below). Leydesdorff (2012) represents components of the TH as follows: (1) wealth generation on the market by industry, (2) legislative control by government, and (3) novelty production in academia. Coordination of these three components results in a knowledge product, that is discussed as marketable innovation, i.e., patents. "Whereas patents are output indicators of science and technology, they function as input into the economy" (Lawton Smith & Leydesdorff, 2014, p.5). As such, the knowledge-based economy endogenizes knowledge production within the dynamic of three-way interaction (Ibid., 2014).

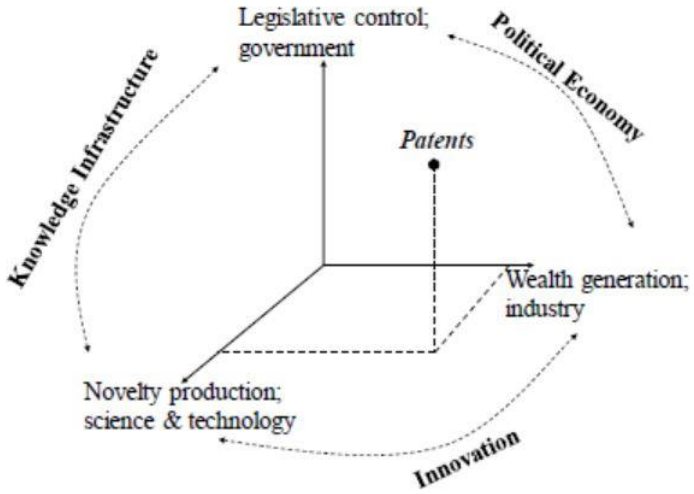


Figure 1: Interactions in Triple Helix Model (Leydesdorff, 2010)

In line with Evolutionary Theory, the book Evolutionary Economics and Chaos Theory (Andersen, E., 1996) presents a view that there is a coevolution between technologies and industries, and the supporting institutions (Becker et al., 2012; MacKinnon, D., 2008). This view on the one hand builds on Schumpeter's theory of Creative Destruction (Schumpeter, J., 2013; Elliott, John E., 1983), where Schumpeter argues that capitalism as an economic change is never stationary but rather has an evolutionary nature. "The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation - if I may use that biological term - that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism" (Schumpeter, J., 2013, p.83). However, the main difference lies in Schumpeter's view of capitalism as a constant destruction of old, and constant creation of the new, notwithstanding the change in the existing structures. The Evolutionary Theory offers a more holistic explanation of the process and argues for the coevolution of the institutions, industries, and technologies, as a positive transformation of the existing (Andersen, E., 1996).

3.2 Encouraging Innovation: Entrepreneurial & Developmental States

Bringing together Carlota Perez's proposal for Policy and Institutional Innovation (Perez, C., 2019; Ibid., 2021), tied in with the Triple Helix model (Leydesdorff & Meyer, 2006; Leydesdorff, 2012; Lawton Smith & Leydesdorff, 2014) in the Evolutionary Theory (Andersen, E., 1996) context with the objective to establish a knowledge-based economy, a question on the necessary conditions for the knowledge-based economy to emerge, deserves further exploration. When discussing policy issues and the provision of an enabling ecosystem for knowledge-intensive innovation, one cannot overlook the role of the government in the process. Thus, the question on how the government should provide an enabling innovation ecosystem for knowledge-based economy stands. In her paper on The Entrepreneurial State (Mazzucato, M., 2011), Mariana Mazzucato discusses the state-led innovation that goes beyond the Keynesian and Schumpeterian visions of the state (Ibid., 2011). In contrast,

Mazzucato proposes the view of a more entrepreneurial role of the state. According to Mazzucato, risk-taking due to market failure is usually avoided by the private sector. This is where the government comes in: taking risks and making more long-term investments for technological innovations. "It [the state] has played an active entrepreneurial role - envisioning new technological opportunities in high-growth areas; undertaking the very early risky investments that lay the groundwork for future exploration of these areas; funding new start-ups that commercialize the innovations; and in some cases, even bringing the product to market" (Ibid., 2011, p.132). As a result of such interventions, the Entrepreneurial State in turn creates new markets (Ibid., 2011; Ibid., 2016; Ibid., 2017; Ibid., 2018).

There is a long history of academic and political discussion on the state support for creating a vibrant private sector and enabling doing business. In 1989, Peter Evans was writing about the concept of the Developmental State (Evans, P., 1989). Evans suggests bureaucracy, sense of corporate identity and links to private elites as indicators for the efficacy of the developmental state (Ibid., 1989). States that "foster long-term entrepreneurial perspectives among private elites by increasing incentives to engage in transformative investments and lowering the risks involved in such investments. …the consequences of their actions promote rather impeding transformation" (Ibid., 1989, pp.562-563). The East Asian Newly Industrializing Countries (NICs) are examples of such developmental states that through governments' active engagement with the private sector encouraged transformative innovations on a state level (Ibid., 1989). Nonetheless, it is important to draw the distinction between the Developmental State and an Entrepreneurial State with a view to the distinction between Schumpeter's Creative Destruction and Evolutionary Theory (Andersen, E., 1996; Becker et al., 2012; MacKinnon, D., 2008).

In the paper Innovation and the Entrepreneurial State in Asia: Mechanisms of Bond Market Development, (Rethel & Sinclair, 2014) authors identify institutional innovation of the state beyond national bureaucracy and politics of resource mobilization. "The idea of the entrepreneurial state differs from this conception by focusing upon market creation and development through the prism of institutional innovations that are encouraged and facilitated by states" (Ibid., 2014, p.565). For more clarity about how the government can innovate, it is helpful to bring in Mazzucato's proposal for adopting mission-oriented policy for transformative institutional innovation (Mazzucato, M., 2017; Ibid., 2018). For Mazzucato, "innovation is about structural change" (Ibid., 2017, p.4). This requires reconceptualizing the role of the public sector, as a visionary for strategic development towards the desired goals on "technological changes that will affect opportunity creation across sectors" (Ibid., 2017, p.5). In doing so, the state not only encourages innovation but also cocreates new markets. The proposal goes beyond sectoral reforms and tasks each agency to adopt a mission-oriented thinking to "enable bottom up experimentation and learning" (Ibid., 2017, p.8).

Type of State	Developmental	Entrepreneurial
Source of Value	Industry and manufacturing	Services and the "knowledge economy"
Financial System	Bank-based	Disintermediated
Network effect	Not recognised	Central
Expertise/ knowledge	Public (policy)	Private (market)
Outcome	Controlled	Open-ended/unintended effects
Governance	Command, based on industrial model; interventionist	Encourage, based on innovation model; facilitating
Bureaucracy	Integrated, elite	Separate, creation of autonomy/ privatised institutions
Future	Certain	Uncertain

Table 1: Developmental vs Entrepreneurial State (Rethel & Sinclair, 2014)

Mission-oriented policy can extend to different spheres from investing in provision of national broadband network, knowledge infrastructure, to public financing for innovation (Mazzucato & Semieniuk, 2017). In order to assess the extent of development of local ecosystem for entrepreneurship and innovation enablement, we use the Entrepreneurial Ecosystem Framework first proposed by Isenberg (Isenberg, D., 2010) and further updated by Mazzarol (Mazzarol T., 2014). Mazzarol defines entrepreneurial ecosystem as an interaction between institutional and individual stakeholders to foster entrepreneurship, innovation and SME growth. The article defines nine components of the entrepreneurial ecosystem that need to be fulfilled to encourage entrepreneurship development. The framework consists of economic (micro/macro) policies and legal and regulatory frameworks in place that also regulate infrastructure; access to finance, such as debt and equity and venture capital; entrepreneurial culture present for transformative innovations; business mentoring and support services; internal knowledge generation in universities; availability of education and training programmes for entrepreneurs; generation of skilled workforce; and, access to domestic and international markets. This relates to the theory on Entrepreneurial Ecosystem (See Figure 2 below) that represents a cycle of 9 elements that need to be fulfilled to encourage entrepreneurship development.

Figure 2: Entrepreneurial Ecosystem Framework (Mazzarol, 2014)

3.3 Analytical Framework

In the paper on Entrepreneurial Gardening, (Clark et al.) provide a brief summary for each of the components of EE Framework that will serve as a guidance for our analysis.

- **Government policy** fosters creation of a vibrant environment for a successful and sustainable entrepreneurial development. Policies can target (1) entrepreneurial actors, (2) entrepreneurial resource providers, (3) entrepreneurial connectors and (4) entrepreneurial orientation.
- **Regulatory framework and infrastructure** serves as a holistic approach for creating an enabling environment for doing business. The World Bank's 'Ease of Doing Business' ranking falls under this component, as well as the access to basic infrastructure essential for business operations.
- **Access to finance** through credit, venture capital, angel investors, private equity, public stock markets and philanthropic activity is another key component for growing business. In the case of start-ups, personal loans are a frequent and preferred mode of financing. However, the paper points out that scale-ups usually prefer external debt as a financing mode.
- Another important component of the EE Framework is an **entrepreneurial culture** in place, which concerns awareness raising campaigns on entrepreneurial developments and innovations, and the societal attitudes towards risk-taking and experimentation. The social stance of entrepreneurs as well as preference for self-employment, and personal drive are key factors in the existing entrepreneurial culture.
- Availability of **formal or informal mentoring programmes** for business consulting and advisory for business intelligence are important factors in guiding founders through their impact journey. Incubation and acceleration programmes, peer entrepreneur or business network support are examples of such types of systems.
- The paper emphasizes the role of **universities as catalysts** for entrepreneurial development through their academic programmes, theoretical and applied research. University graduates contribute to innovative development of new and existing ventures. Therefore, academia can act as a hub for the development of entrepreneurial capacity and ventures (Wadee & Padayachee, 2017, as cited in (Clark et al., 2021, p. 702).
- The paper also focuses on **education and training** of employees to support functioning of the entrepreneurial economy. This component may include universities as contributors of entrepreneurial knowledge, but it also expands to cover all potential resources of educational providers.
- In the changing global markets, business models, and employment systems, **human capital and workforce** that can adapt and respond and drive a dynamic entrepreneurial knowledge economy is key.
- Significant factor in a business growth is **access to new markets**. This may include geographical as well as operational expansion. Market segmentation and, in turn, market expansion, as well as access to local and global markets are important for early-stage as well as growth business.

The paper further points out interrelatedness of the components of the EE Framework; i.e. Universities as Catalysts and Education and Training that directly focus on knowledge generation. These components together result in production of entrepreneurially trained Human Capital and Workforce that are drivers of entrepreneurial knowledge economy. Such a mindset directly contributes to cultivating entrepreneurial culture, where society celebrates entrepreneurial undertakings and innovative developments. Together, entrepreneurial

education, workforce, and culture generate formal and informal mentoring opportunities and systems. By showing the interconnectedness of the EE Framework components, the paper demonstrates that entrepreneurial education activities and outcomes are a part of the "complex, integrated and holistic nature of the EE framework."

3.3.1 Units of Analysis

Based on the analysis of the EE framework, it is evident that creation of the knowledge-based economy cannot be guaranteed by any one single intervention by one actor. Rather, it is a process that is driven by the continuous efforts of multiple actors that jointly sustain the entrepreneurial ecosystem. In order to analyse the situation in Georgia, the primary data collected as a result of qualitative interviews during a field visit as well as complementary document and resource review, we will apply the EE framework. The goal is to showcase a baseline assessment of the current situation in the Entrepreneurial Ecosystem in Georgia. Comparing the outcomes of the baseline assessment against the overall objective and vision for the country's development will help illustrate the relevance of measures undertaken in relation to the achievement of desired results. Finally, the conclusions will follow linking the main findings with the conceptual framework in place and make recommendations stemming from the analysis.

Chapter 4
Methodology

4.1 Research Approach

The research question: *In what ways does the state intervention in the form of providing tax breaks to IT companies with the 'international status' is shaping the local entrepreneurial ecosystem to make Georgia an IT hub?* has been formed at the initial stage of the study. Over the six-month period from May to November 2022, the research process was structured in four phases:

(i) Inception phase and desk research that served to collect preliminary data for the review of country and sector context as well as academic literature around the topic. This was followed by the preliminary stakeholder mapping and analysis, as well as the design of an interview guide.

(ii) During the months of July and August, second phase of the research was conducted in the field in Tbilisi, Georgia and entailed stakeholder interviews to collect primary data, and obtain relevant official documents. This phase focused on understanding the rationale of the policy intervention and identifying and contacting the key stakeholders and informants for the interview.

(iii) Third phase of the research aimed at complementing literature and document review by 21 in-person interviews with key stakeholders. In some cases, due to scheduling or physical access issues, online interviews via Zoom or Teams platforms were employed.

(iv) Notes and transcripts of stakeholder interviews were processed and analysed using coding technique. After summarizing each interview into main themes, all the interviews were organized based on their correspondence to the 9 components of the EE framework. Second-degree analysis entailed narrative analysis of the interviews, and their synthesis with the rest of the collected data. Finally, the process led to the aggregation of the 9 components into three main dimensions. As a result, recommendations were designed reflecting on the strengths and weaknesses of the policy, and amendments to be adopted in this regard.

4.2 Methods

Policy for encouraging IT development in Georgia serves as a single case study of this research. Qualitative interviewing technique was applied to conduct interviews with the representatives of (Complete and detailed list of Stakeholders Interviews and Consulted can be accessed in Appendix 1):

1. IT companies with 'International Status' – international companies that relocated their offices to Georgia, and originally Georgia-based companies that received the Status. The sample included representatives of SMEs and start-ups.
2. Central government agencies involved in devising the tax incentive (Ministry of Economy and Sustainable Development of Georgia, Georgian Innovation and Technology Agency (GITA), Enterprise Georgia) to understand the vision guiding the policy and future vision of the sector development.

3. International donor interventions, ICT Cluster Georgia, Consortium for Digital Transformation Georgia, and academia.

Semi-structured guided interviews with open-ended questions were based on a questionnaire comprising the following stages of the journey:

1. Interviews with international ICT companies were structured into three phases and took into account experiences before, during, and after their relocation to Georgia;
2. interviews with government stakeholders focused on three phases of designing the policy, its implementation, and future vision; and
3. interviews with Georgian local IT representatives explored the ICT ecosystem for local stakeholders, and impact of the tax incentives as experienced by them.

4.2.1 Justification & Limitations

The typical single case study method was preferred over the comparative technique, because of the complexity of the components of the local ecosystem to be explored, described, and analysed. Gerring explains that "by construction, the typical case is also a representative case" (Gerring, J., 2007, p.91). Though interesting and valuable, comparative case study would go far beyond the scope and limits of the present paper. In line with Yin: "The single-case study is an appropriate design under several circumstances, and five single-case rationales – that is, having a critical, unusual, common, revelatory, or longitudinal – case" (Yin, R. K., 2009, p.84). In the present paper, the research reveals characteristics of a specific locality, i.e., Georgia. Nonetheless, the findings of the study can be generalized to other instances.

As for the rationale behind stakeholder mapping: state in Georgia remains the key driver of the policy design and implementation. As such, representatives of the key Ministry in charge of the policy vision and implementation and agencies under it were selected as key informants. Taking into account Georgia's aspiration for EU membership, the country's reform agenda remains largely influenced and shaped by the support from donor organizations. In this regard, managers from largest projects contributing to the support to IT development in Georgia were interviewed. Insofar as the private stakeholders are concerned, in line with the focus of this research, only companies with 'International Status' were targeted. While the response rate from the company representatives was low, the research managed to capture a varied sample of companies, their journeys, and experiences of the local ecosystem in their daily operations. As for the civil initiatives, ICT Cluster Georgia, and Consortium for Digital Transformation Georgia are the two most active organizations involved in policy consulting in the IT sector in Georgia. The research presents data from one university that was unanimously named as the main educational partner by each stakeholder, though it has to be mentioned that there is an increasing number of universities offering various degree programmes in IT.

Considering that the policy intervention is recent, there is no database that provides substantial information that would allow to draw conclusions relevant to the research question. Therefore, qualitative interviewing technique made primary data collection and gathering of comprehensive information around the topic possible. Representative sample of stakeholders from different sectors allowed for data triangulation that formed a strong basis for drawing final conclusions.

3-level narrative analysis technique takes after the methodology of grounded theoretical approach discussed in the paper by Banerjee & Jackson (2017). While the present research

does not propose a new theory as it far exceeds the scope, it follows the 2-stage approach to data analysis through iterative coding, and aggregating themes into theoretical dimensions.

Chapter 5
Data and analytical discussion

5.1 Entrepreneurial Ecosystem in Georgia

Government Policy

Government, as one of the 'gatekeepers of opportunities', seeks to increase the quality of public service delivery. However, this is challenging, given the adequate resources to initiate such an innovation with in-house IT development team. Government is currently piloting a shift to the GovTech model, where the state will decentralize the technical side of the public service delivery (to be provided by the private companies), while maintaining a role of a regulator itself. Most prominent examples of such models are aviation, telecommunications, and etc. The Public Service Hall of the Ministry of Justice is an innovative model of one-stop-shop for public service delivery, which was inaugurated in 2004 in Georgia. The model was hailed as a successful reform, but the system is in need of a technological and innovative upgrade. Due to a non-competitive pay and lack of new innovative undertakings, the government is struggling to keep the IT professionals employed in-house. This provides an opportunity for the government to pilot a GovTech model, where technical delivery of public services will be provided by the private sector, with the government taking more of a regulator role.

In order to pilot the GovTech model, the government will act as a marketplace for the pilot property registration project, whose technical side will be outsourced for the provision to IT companies[2]. The GovTech pilot model targets decentralization of property registration services currently offered by the Public Service Hall. Shift to a GovTech model will allow the government to innovate, and in a long run export local know-how to foreign markets (e.g., neighbouring, and Central Asian states). This has been referred to as a profitable model for the state. Moreover, use of innovative decentralized public service delivery through blockchain technology limits possibilities of manipulation and corruption that might take place in case of tendered projects. IT algorithm substitutes professions, and it is beneficial for state's transparency.

Vision of the state is inclusive of the private sector, and a service-owner. There are B2G, B2B, B2C models – GovTech representing the B2G model. GovTech ensures quality of public service delivery, and sectoral development. Through the GovTech model, service export becomes possible (business, or e-governance), where other governments become clients of such services. This shift requires adopting complex changes, including defining criteria on services for decentralization: what stays with the government, and what can be opened up. The proposed model entails a complete digital transformation, including a business level model that represents a relationship between state and business, where state is no longer a competition for business.

There is a shift from a tourism-based economy to a knowledge-based one. Vision for Georgia is to take a niche market in IT software development. Software development ensures access to global markets. End goal for Georgia as an IT Hub is product development and its export. However, the vision is not guided by an overarching holistic strategic document. There is a strategic document on e-governance 2014-2018, so called e-Georgia by the Digital Governance Agency. Legal framework in place is a Law on Technology and Sciences from

[2] It is still not agreed whether the opportunity will be open for local or international IT companies as well.

1994 and has not been updated since then. While the country is transitioning to a knowledge-based economy, tourism, among other sectors such as agriculture, continues to see significant state support through various support programmes and subsidies.

What exactly does the shift to a knowledge-based economy look like? Aspiring image of a Giorgi (an average Georgian citizen) residing in rural Georgia, having just graduated from high school and without a need to embark on a long path of formal education that may or may not lead to employment and economic gains (for example, investing years' worth of efforts in getting higher education in History, and having an opportunity as a public school teacher as their only option), can take a short online self-taught course in one of the computer programming languages such as Java, Java Script, C++ or other professional development training that will bring an employment opportunity that pays $1,000 a month (roughly 2-3 times the average of a monthly Georgian income) almost immediately.

This is a promise of a possibility of economic prosperity to all through a short-term period and almost no financial investment for a significant gain. This concept was referred to by the Deputy Minister of Economy as one of 'quick wins', that aims at achieving tangible results for economic prosperity in the short-term. The end goal is socially motivated, with the aim to ensure common good for the larger society through a short-term intervention.

Vision for knowledge is with the view to short-term skill-set acquisition to respond to the demands of the labor market. IT development means better employment, better pay, more economic growth in the country, and more participation in international projects.

At the same time, a knowledge-based economy has been defined as one, where economic activity is supplied by R&D. To this end, GITA through its support programmes aims to develop an economy based on knowledge-led innovation. In a knowledge-based economy, priority is value creation, product development, and export of product.

Interviews reveal varied understandings and meanings for the end vision for Georgia's development. Georgia as an IT & start-up hub means that the country leads and drives the IT & start-up ecosystem. Some characterize it as an incubator. Georgia as an international IT hub means that the country has as many software developers as possible. Georgia as an ICT hub consists of two main components:

- Georgia as a solution development hub, which leads to significant economic benefits
- Georgia as a place with a large number of IT professionals, which will focus on raw material export, intellectual service outsourcing. This puts the country's IT professionals in the position of mechanics, providing system support to the products whose ownership lies abroad.

Considering the small size of the country's population, Georgia can't compete with India or Sri Lanka in the latter component. Therefore, it is important to focus on the development of Georgia as a solution-making hub and not as a brain drain hub.

EU intervention in Georgia focuses on the country's development as an IT hub. However, it has been noted that more coordination from the state and prioritization of the topic is required to take more active steps to support this developmental aspiration and create champions of the topic. Interventions from GITA, Enterprise Georgia, Data Exchange Agency (DEA) have been described as fragmented.

There is a consensus from all stakeholders that the government should enable use of knowledge for product creation in-country. IT provides high added-value, and a possibility for scaling and replication. ICT business is cross-cutting, and it develops other sub-sectors.

Enterprise Georgia focuses its activities on the support of entrepreneurship, export, and investment. Georgia had to identify a niche market for economic development. Interventions for economic development are diversified, with projects ranging from Boeing's

Maintenance Repair and Overhaul (MRO) fixing service, to the PUMA's textile factory. However, these interventions are small-scale and considering the global players in the machine and hardware development industry (for example Vietnam), Georgia cannot compete with them. As such, the policy vision is that the economy should be focused on outsourcing intellectual services, Business Processes Outsourcing (BPO) being the key direction. This vision is guided by the study conducted by the IFC and World Bank on desirable and feasible sectors for value generation. BPO offers opportunity for less capital spending and is less risky. Competitive advantage of Georgia among regional countries in developing BPO services is in low salaries, and knowledge of foreign languages (English, Russian, German).

State support is significant in stimulating programmes for sectoral development (model based on the development of Asian NICs that developed through subsidies). State support is the safe option to attract international companies. There is a global race to the bottom to provide tax incentives to attract FDIs. This trend in Georgia has attracted over 40 IT companies who have already received 'International Status' (they have either opened extension of their offices or relocated). Tax incentives in the IT sector in Georgia were based on the model of Hi-Tech Park Belarus, where IT share in total GDP is significant - 5.1% as reported by StrategEast Report in 2018 (Motkin, A., 2018). For Georgian policymakers, Estonian e-governance is a best practice; and so is Israel as a model of a developed start-up ecosystem.

The Georgian state vision for IT development is linear: 1st – support immigration to develop tech talent locally, 2nd – focus on outsourcing of IT knowledge to engage the country in the international global value chain in IT production, 3rd – encourage product development locally.

Currently, the IT sector in Georgia is growing. One of the reasons for this is the war in Ukraine and a resulting brain gain for Georgia. As a representative of one of the IT companies noted, "Georgian government has a huge opportunity to build something [in IT] right now. But the sector needs to be prioritized by the government. Otherwise, 25-30% of IT talent who relocated to Georgia will leave, because no one cares about them. Government needs to make them feel needed."

Regulatory Framework & Infrastructure

Since 2018, the Government of Georgia actively supports IT development in the country, mainly through creating a favorable business environment for international companies and individuals in the field to operate from Georgia. Various tax breaks have been offered, such as virtual zone (0%), entrepreneur (1%), International status (5%) for very low or almost no percentage on income tax. The government continues provision of tax incentive policy to the sector, and recently announced an additional cashback of up to 15% on FDI when focused on training and capacity building activities in the IT sector. Currently, GeoStat has no methodology for calculating the financial impact of tax breaks on the economy.

It is important to note that no tax breaks are offered in the BPO sector. And, with the rising competition in the industry, prices are also rising. This will probably also change the configuration of how BPO service will continue to be supplied from Georgia, and what kind of companies will be attracted to the country.

Georgia is considered as an interesting and attractive place in the region for doing business. The following were named as key factors that attract international companies to Georgia: cost of living, low taxes, climate, liberal immigration policy.

Points advertised by the state to attract FDI in IT sector are:

- Ease of doing business (favourable business environment, including low corruption index)
- Human capital: trained workforce (GITA will train 5,000 more IT Professionals)
- State support to the sector

- Cultural interconnections with Georgia

There is a significant state support to FDI attraction, because it is viewed as a push in the ecosystem for organization of local human capital. Notably, Georgia is seen as a cool country with an easy operational environment, and affordable but quality life.

Main areas tackled by GITA are infrastructure, financing, and talent development with the main goal to increase the country's attractiveness as a place of investment.

There is a high internet coverage throughout Georgia (88.4% of Georgian households have enjoyed access to the Internet). In September 2022, GeoStat reported that 95.9% of Georgians use the Internet with the main purpose of the use of social media. At the same time, the IDFI report on Digital Research and Impact for Vulnerable E-citizens (DRIVE) Project reported the urban-rural disparity in internet access. This gap is significant when considering vision for Georgia as a regional IT hub. With an increasing number of IT companies operating from Georgia, it is crucial that the necessary infrastructure is in place. Urban-rural divide poses challenges for the IT base supply and limits it to urban areas only. High internet coverage does not mean that the high-speed internet is supplied. National broadband development strategy 2020 envisages infrastructure development for the ensuring internet penetration, high speed, and access to all.

As far as the rural physical infrastructure is concerned, IT company with an 'International Status' DataArt mentioned that their medium-term business development strategy in Georgia is to open regional offices throughout the country. For a business that conducts a large portion of its activities online, investing in physical offices is important, because not everyone in the regions has a home office and their preference would go for a company that offers favorable physical working conditions. This points to a problem of lack of physical offices and lack of working spaces in the regions of Georgia.

It is not clear to what extent the access to the Internet and particularly high-speed internet has affected the performance or hiring practices of companies in rural Georgia, insofar as the connectivity issues have not been brought up by the company representatives interviewed.

Some of the key challenges facing the internationalization of IT in Georgia are underdeveloped physical infrastructure, unstable political environment, relatively high poverty levels, risky [regional] security situation creating a sense of instability.

One of the pillars targeted by the EU intervention concerns physical infrastructure for connectivity.

EPAM is the first company to obtain 'International Status'. They have been receiving State support from Day 1. They found good conditions for IT operations from Georgia; however, faced issues with bureaucracy for internet set-up, which took 1 month.

Companies with 'International Status' assess tax benefits as significant for their operations, making the market competitive, they are attractive and financially very important for companies' operations. For Impel, a Georgian company later acquired by the U.S. company, the opportunity to operate as an international company put trust in the capacities of the Georgian company and was crucial in the process of acquisition. In the process of their acquisition, GITA proved to be helpful, but other state institutions were more bureaucratic: the process of internationalization of the company and its legal registration was an overwhelming experience.

Another challenge experienced by international companies is instability of Georgian currency exchange, which poses inconvenience for their employees.

Funding & Finance

Scarcity of available financing opportunities for start-ups is a challenge in the development of entrepreneurial ecosystem. There are not many options for the access to finance

through seed financing, angel investors, and venture capital. Crowdfunding remains a challenge in Georgia.

Since 2020, through state efforts, 500 Startups has expanded their activity to Georgia to provide seed financing and venture capital to innovative start-ups. Since 2021, Public Broadcaster has been running a Georgian spin-off of investment show Shark Tank that is one way of getting investment for an innovative idea. TBC Startupper is a programme offered by a Georgian bank to provide financial support to young entrepreneurs. IFIs support start-ups with high risks.

The World Bank GENIE programme has been one of the key sources for start-up financing. Most start-up financing opportunities have been run through the efforts of GITA to offer matching grants and attract venture capital for the local innovative start-up development. Through GITA's efforts, there is a venture capital fund Catapult operating in Georgia to fund innovative start-ups. Grants provided by GITA is a state response to the availability of seed capital.

IT company Impel with 'International Status' has sourced $1.2mln investment from Georgian and U.S. investors, they were also the recipients of 650,000 GEL grant from GITA.

Local IT companies noted the limited access to finances during the interviews and expressed the need for additional financial opportunities and the increase of venture capital.

Georgia, as a country with the 'European Perspective' can get access to cheap financing from the EU companies in the future. On a policy level, one of the priorities to address access to finance is capital market development.

Culture

Due to a long history of the impacts of exogenous and endogenous shocks on the economy, IT & entrepreneurship in Georgia are still considered high-risk economic activities. Generally, there has been a fear of risk-taking in relation to entrepreneurial undertakings. However, there is a rising popularity in freelancing. Gaining IT skills gives healthy ambition to Georgians. Efforts are directed towards increasing awareness on the IT mindset, especially in the regions.

Innovation is born during the time of crisis, and Georgians have a survival mindset that is often discussed as a characteristic in relation to the development of Israel.

Representative of EPAM characterized Georgians as entrepreneurial and with a start-up mindset.

Mentors, Advisors & Support Systems

State support for IT development has been provided since 2014 with the founding of GITA, which was established with the start of the World Bank GENIE programme. GENIE consisted of 3 components:

1. innovation infrastructure: establishment of 50 regional hubs, techparks, NET (internet access for 1,500 households), MSME trainings in e-commerce (1,500 entrepreneurs in regions);
2. innovative (re)trainings and certification (3,000 IT specialist in 41 directions) programmes based on skills needs assessment (skills gap on international and local markets collected by Ministry of Education and Science of Georgia);
3. innovation financing: start-up support through matching grants.

GITA is an enabler of start-up and tech in Georgia. It has organized hackathons, pre-accelerator programmes (run by the Estonian start-up, Wise Guys), and a start-up grind to bring together a start-up community in Georgia.

GITA has been the first to initiate the organization of hackathons for years to encourage and stimulate some kind of IT activity in the country. "Our aim by 2025 is to have the first unicorn", mentioned the head of GITA's agency for strategic development, "to make sure that we put Georgia on a map in that sense".

The agency has been offering a 5,000 GEL grant for organizing innovation-related events. It aims to bring about inclusive development of regions in Georgia through tech participation.

ICT Cluster's work targets regional networks, collaboration with GITA programmes, partnership with Innovative Education Fund, and Ilia State University, as well as the Digital Transformation Consortium. They have established partnerships with the business association and organize matchmaking.

Informal support systems include knowledge transfer and sharing through personal means and sometimes conference participation. There is a significant factor of network effect, where successful startup founders become investors, and the founders start to share investors.

Universities as Catalysts

There is an increasing number of universities offering different degree programmes in entrepreneurship, technologies, and innovations. Business to academia partnerships are forming, where universities consult with IT companies in the process of design of the curricula to better match the programmes to the employer needs. Cooperation with universities entails mentoring of students, participation in job fairs, active engagement in education programmes. A number of IT companies (e.g., DataArt, ExactPro, Exadel, EPAM, etc.) with 'International Status' have MoUs with the Business and Technology University (BTU) to train and hire their students. However, many of the respondents from IT companies noted the need for more active cooperation for knowledge transfers.

Areas of improvement include upgrading the level of professors, and further update of the programmes offered. This has an effect on the skills level of the university alumni in Georgia, insofar as only 1-2% of university graduates correspond to the employer standards. Most of the IT companies interviewed noted that the newly hired staff need to go through intensive further trainings.

Education & Training

Education is viewed as a short-term targeted undertaking for gaining specific skills demanded on a labour market. Currently, the main focus is on the provision of as many training opportunities as possible to train and re-train IT professionals locally. These efforts are made by the state through programmes run by GITA, such as 'Re-training of 3,000 IT professionals'. The programme focused on the provision of internationally certified programmes in 41 most trending areas in IT for non-beginner professionals. Programme offers bonus courses in freelancing and product management. International certification allows it to demonstrate compliance with the global standard.

Training and international certification increases competition on job placement, and provides career growth in a short period of time. As a result of the GENIE 3,000 IT retraining programme, many private companies started requiring international certification. As a response to the competition, local companies began scaling up staff retraining.

This will be followed by another programme for 5,000 IT professionals that will focus on development of beginner's skills in IT without providing international certification. GITA has signed a MoU with EPAM to provide employment opportunities for the course graduates as part of the re-training programme.

Besides state efforts, IT companies themselves are developing their own in-house training programmes, and either support further skillset development of their employees, or offer employment opportunities to the course graduates. Educational programmes are offered for free in Exadel. EPAM runs its own digital skills learning platform - EPAM digital faculty that makes digital technology skills development available for the employees in Georgia as well.

Another company with an 'international status' ExactPro noted that their strategy is to partner with the universities, raise awareness, recruit students and help them grow. They have also partnered with 500 women in tech (GITA) programme and offer 2-month internship with prospects of employment.

There is a notable collaboration between the bilateral development agency USAID and a Georgian IT company with an international company status, Sweeft Digital. The IT company has obtained a grant from the USAID Economic Security Program in Georgia to launch its acceleration programme to train and hire IT professionals - Making Science joint course for apprenticeship that offers 20 courses to 125 trainees (young specialists). USAID supports transition to knowledge-based economy through supporting development of shared intellectual services with the end goal to have a pool of trained workforce.

At the same time, there is an active cooperation with the degree programmes in Georgian universities to design programmes that directly respond to the employment opportunities available on a labor market. As a career manager at BTU mentioned, they don't have any unemployed 3rd or 4th year students in their BSc in IT programme.

Though it has also been noted that IT is a dynamic industry that is constantly changing and developing; therefore, a large portion of learning happens on the job. There is a significant gap in knowledge and experience. Respondents have noted that becoming an IT professional is not as simple as it has been presented to be. It requires at least intermediate proficiency in English, computing, and logic, as well as some technical skills such as proficiency in Excel.

GITA regional interventions cover encouragement of STEM subjects. ICT Cluster Georgia is working on the establishment of tech clubs in regions to address skills gap and lack of workforce in the sector. It focuses its activities on encouraging IT skills & education, business development & export, policy & regulation. They have designed handbooks & training for 30 companies to provide SME support to adapt to COVID-19 pandemic. They have launched a project to run 100 clubs with 2,500 students in ICT skills for the age group of 14–22-year-olds.

Digital skills development is targeted by EU intervention; specifically:

- Basic skills: Production Process Automation (PPA) (access to Google Maps, service registration on Booking.com, Airbnb)
- Advanced skills for IT professionals (GITA)
- Women and girl employment

Human Capital & Workforce

With a population of 3,7mln, the share of IT professionals in Georgia is about 0.1%. Mainly, employment opportunities in IT in Georgia are offered by the international outsourcing companies. This creates a problem of 'brain drain', because the skills of local talent are outsourced for product development of international companies on global markets. Besides local outsourcing, IT professionals from Georgia are hired internationally by Google, Microsoft, and international start-ups, exacerbating the problem of brain drain.

Georgia offers low-paid (cheap) labor to the IT industry, where firms are able to offer competitive salaries due to tax breaks.

As mentioned by most of the respondents, the main challenge in the industry is the shortage of skilled workforce. This is mainly caused in relation to the size of the population: there is always going to be scarcity of IT professionals in Georgia as the population is small and there will not be an adequate number of IT professionals to fill in all the demand created on the market. Notably, the challenge is not specific to Georgia, and is largely experienced internationally. For example, in 2017, Germany announced 400,000 open vacancies in the IT sector as part of their increased demand on IT professionals due to their ambitious digitalization strategy. Second challenge relates to the fluency in foreign languages, mostly English, to work on projects internationally. Thirdly, since Georgia has opened its borders to foreign collaborations after decades of Soviet rule within closed borders under Russia's hegemonic influences not so long ago, not many Georgians possess experience of working with multicultural teams and settings.

There are many developing opportunities in the sector and a subsequent demand for employing IT specialists in specific fields. Competition for the workforce is high. Demand is increasing, and provision of supply is not catching up in terms of workforce. Therefore, currently, focus is on development of tech talent to increase demand on local professionals and bridge the international demand with local context through workforce upgrade.

Enterprise Georgia aims at supporting employment and high-skilled workforce development. They noted that cheap labour is not a competitive advantage for attracting quality investment.

GIZ objectives through their intervention was training of the workforce, and inclusion of ICT in public service delivery. USAID Skills-led Workforce Development conducted a study and revealed a deficit in IT support. Therefore, their intervention focuses on workforce training in the field.

GITA is working on creating a platform for job demand to support matchmaking. It has been noted that IT specialists' motivation are good salary and an interesting project for product development.

Availability of intellectual resources was a factor for EPAM's move to Georgia. Technical skills and level of English language among young people was impressive. Their move created demand for new professions, resulted in further attraction of FDI in the sector and respective upgrades in the IT sector. Inflow of international companies increased quality and standard, and raised awareness among youth about tech. In general, there is a lack of standards and requirements for IT staff.

Before the war broke out in Ukraine, EPAM's largest office was in Belarus, employing 12,000 people. At that time, the Georgian office employed 600 employees. Currently, their Belarus office employs 4,000 people, while the number of employees in the Georgian office has increased by 5 to 3,000 over 6 months. For regional comparison, EPAM Armenia employs 800 people. EPAM considers Georgia as a big IT potential with the biggest opportunity in the region, currently counting 10,000 experienced IT specialists. "We don't want to provide just coding specialists, we want people who can be solution engineers," – explained their representative. They expect to staff 75% of their office with Georgian professionals.

Local & Global Markets

Currently, Georgian market consists of local product developers, local outsourcers, and global vendors. Main clients locally are Financial Institutions (banks), gambling industry (online casinos), and the state apparatus. These three groups are mainly working on innovative product development, but with their in-house IT development teams. They are often referred to as 'gatekeepers of opportunities' due to lack of cooperation with the private sector for product development. Therefore, product development opportunities, where ownership

will lie locally is limited. Local demands for product development are too small and scarce, and thus do not provide such opportunities for tech or innovative development.

The most recent intervention to provide tax incentives to companies that receive 98% of their income from international activities put local IT companies at a disadvantage. Most Georgian companies are small and cater to local clients, therefore they can't comply with the requirement to obtain an international status and qualify for tax benefits. As a result, many local companies are not able to offer competitive pay to their staff and they lose their employees to international companies operating in Georgia. In turn, they are facing being driven out of the market completely. Local IT companies bring up a need to address competition created by 'international status'. However, some local stakeholders consider that local IT companies were facing a competitive challenge anyways even before the international companies started operating in Georgia.

Georgia supplies the full back-office support to some of the leading companies, such as Booking.com, TikTok, Instagram, and etc. It takes years of negotiations with the big companies to open their office to Georgia, but once one company comes, the others follow, and that has been the case for BPO as well as the IT sector in Georgia. Currently, there is an influx of international companies to Georgia.

End-goal for Georgia is product development with focus on development of local companies. Software development ensures access to global markets.

Start-ups should be able to scale-up in a short period of time, hence internationalization as a strategy for start-up development. Part of the vision for internationalization is that R&D should stay in Georgia.

The context of 5th Technological Revolution along with COVID-19 have accelerated Digital Transformation globally and including in Georgia. During the pandemic, business activities went down, but IT activities went up. During pandemic awareness for ICT needs increased, but demand from business decreased because they couldn't afford services required for digital transformation.

State support activities for business development and FDI attraction include measures, such as organizing a US ICT company study visit (roadshow) to Georgia. Enterprise Georgia arranges trade missions to support export of IT services from Georgia. Target markets need to be identified for product export (e.g., African countries, countries of region, etc.).

Product development locally remains GITA's priority. But there is a shared consensus that the state should commission projects locally to create value. Entrepreneurial uptake should be encouraged as well to this end.

Georgia can claim competitive advantage in high-value innovative product development. Biotechnologies (bacteriophage as a substitute for antibiotics) that need an R&D patent are one tangible example towards achievement of this goal.

GIZ conducted an IT sector diagnostic study as a basis for the ICT cluster creation. Its mid-term goal was to encourage export potential of IT products, and a long-term goal was the support to export of country expertise in ICT sector. USAID in Georgia through its programmes also supports development of export-oriented products. Internationalization of companies and product/service export fits into the Estonian model of governance, which is highly replicated in Georgian policy reform.

EPAM's goal in Georgia is to support the creation of a data driven, digital economy. Their portfolio includes collaboration with governments to create a digital economy. They have created the platform for digital public service delivery, Dyia, in Ukraine and hope to have a chance to do the same in Georgia. Besides willingness to collaborate with the state, EPAM is discussing potential partnerships with the Georgian Railway and Telasi (Georgian electricity distribution company). However, there are challenges experienced to that end stemming from the limitations posed by the conditions of holding an 'International Status'.

For most international IT companies, the weakness of operating from Georgia is a small capacity of the local market. They have no operations on the Georgian market, and main clients are mostly U.S.-registered companies.

Public-private cooperation is limited, however there are some instances of such cooperation. For example, Impel (local company with an 'International Status') has collaborated with the GNTA on a campaign to advertise Georgia, Tbilisi City Hall to analyse and visualize traffic in the city. From the company's perspective, collaborations on tech product development between banks & start-ups is positively changing. While they have been acquired by a U.S. company, they find the U.S. to be a niche market for their operations, while they see a broad range of opportunities on the Georgian market.

It was emphasized that outsourcing of business is not a sustainable way for value creation locally. However, outsourcing remains to be seen as a way to become a part of global value chains, and "if we can't create a whole car, we shouldn't refuse production of a car seat", as one of my respondents noted.

Some local companies with 'International Status' see the importance of the arrival of global companies to Georgia towards creation of jobs, and opportunities for the Georgian citizens to access highly paid jobs.

It has been mentioned that Belarussian political repressions in Autumn 2020 were a positive factor for boosting IT-related developments in Georgia. Nonetheless, Georgia is facing a competition, as its neighbouring countries – Ukraine and Belarus have been considered main IT destinations. Therefore, there is a need for awareness on Georgia as an IT hub to be increased.

5.2 Analytical Discussion

Analysis of data organized under nine components allows for the aggregation into three dimensions. In order to understand the ways in which the state intervention in the form of providing tax breaks to IT companies with 'International Status' is shaping the local ecosystem to make Georgia an IT hub, the data point to the three main factors in the discussion:

- Government policy
- Local ecosystem
- Value chain inclusion

In the three sub-chapters below, discussion will follow on how each of these three factors contributes to the creation and development of a local ecosystem, taking into account the intervention logic behind policy rationale, degrees of cooperation and competition of local and international companies under each of the nine components, and the country's inclusion in the global value chains.

5.2.1 Government Policy

Currently, Georgia has been seeing an influx and a rise of IT talent due to a mix of reasons: attractive and favourable environment for doing business, and reputation as an up-and-coming IT hub. At the same time, it is a so-called island of peace amid the regional conflicts (Demytrie, R., 2022). In this vein, Georgia is presented with an opportunity to push the agenda for IT development. This is an opportunity window for Georgian policymakers that is open in the given moment. As Kingdon writes, "Policy windows open infrequently, and do not stay open long" (Kingdon, J., 1995, p.166). For the country, now is the time when

all the necessary factors are working together to create something big and something new in IT.

The government vision is to put Georgia on a map as a regional IT hub. Interpretations of this vision are not homogeneous and coherent: for some, IT hub means a place for innovation development, for others a place with a large pool of IT talent. State vision for intervention to that end is linear (Cairney, P., 2012) as presented in a results chain (Gertler, P. et al., 2011) below:

The state has been the driver of IT sector development so far, stepping in when the private sector was not active or resilient enough to assume the risk. The state efforts have been driven by the motivation to bring economic prosperity through highly paid jobs in IT. Putting Georgia on a map gave Georgians opportunity and ambition to participate in global value chains through their intellectual input.

For a developing country located in a turbulent geopolitical context, entrepreneurial uptake has been associated with risk taking due to financial instability and uncertainty. On the other hand, survival mindset of the people has been pointed out that can drive alternative developments, and frugal innovations. Nevertheless, such developments are usually led by short-term vision for immediate economic betterment of their living conditions. In order to lead the change, the state acts as an enabler and in some cases even a driver of the ecosystem to aid entrepreneurial development. This is the case for the Government of Georgia, who in pursuing their efforts to be included in global value chains as a means for economic growth and development, combine developmental and entrepreneurial approaches to policy implementation.

The complexity with the state approach lies in the fact that by adopting a policy vision, the state can become an enabler, gatekeeper, and an entrepreneur, all at the same time. While state intervention for IT development for Georgia is too recent to assess its impacts, the current research allows for the interpretation of its effects as experienced by the stakeholders on the ground. Clearly, government stimulus through tax regulations has disrupted the local IT market. Attractive business environment has allowed for the move of IT companies who brought new opportunities to Georgia. International projects have created demand on new professions that had a ripple effect on the skills upgrade. This has created a need for the educational institutions to offer updated programmes in response to the new demands. New standards on the labour market have increased the competition in the workforce.

As laid out by Mazzarol in his discussion on Entrepreneurial Ecosystem Framework (Mazzarol, T., 2014), view to entrepreneurial ecosystem development is holistic with interconnectedness of its nine components. Data collected allows for the baseline assessment of each of the EE framework components. Based on a case study of this paper, the Government of Georgia drives the shift to a knowledge-based economy. The shift to a knowledge-based economy is based on a knowledge-intensive technological innovation development

that is guided by entrepreneurial uptakes. Hence, an entrepreneurial ecosystem framework with interrelation between its components can provide a good basis for exploring the status of the ecosystem towards contributing to the innovation and knowledge-based economy development.

Thus far, the state has been successful in achieving the first three steps of its policy vision: creating a favourable business environment, which helped attract FDI in the country that has resulted in the upgrade of tech talent. But the interviews demonstrate a gap to the next step to achieve local product development. Holistic government policy insofar as it addresses different components of the EE framework can positively serve both the international and local companies equally. The process of creative destruction (Schumpeter, J., 2013; Mazzucato, M., 2013) following the government policy has resulted in changes in all interconnected components of the local entrepreneurial ecosystem. However, these changes are not experienced by the local and international companies similarly. The following discussion on the local ecosystem and detailed description of the experienced changes will relate to the hindrance associated with the product creation locally.

5.2.2 Local Ecosystem

While all the components of the ecosystem in Georgia are present, the interviews have demonstrated that combinations of these components are not so favourable for entrepreneurship development. Currently, the ecosystem development is mostly driven by state interventions. However, the progress is incremental, and currently falls short of required efforts to encourage entrepreneurial risk-taking, access to finance, support systems, and skills upgrade programmes. Weaknesses to support business growth in turn affect access to global market as well.

Efforts aiming at encouraging product development locally have been mainly realized through workforce development. Interviews point out clear limitations to the product development on a local level. Shortage of skilled labour is a global challenge that is also shared by both the local and international companies in Georgia. It creates high competition for workforce between the two groups. In this discussion, it is helpful to recall the motivation of IT professionals in their employment decisions – (1) stimulating projects and (2) high salary. We have already established that the weakness of Georgia's local IT market is its small size, which is directly linked to the opportunities available locally. Therefore, local companies usually are not able to compete with the international companies in terms of their projects. As for the salaries, the tax benefits granted to international companies allows them to offer more competitive wages to their staff. Therefore, in both aspects, local companies are put at disadvantage in comparison to the international companies.

Lack of opportunities locally leave a significant workforce base underutilized, which will create further challenges to the labour market, as these professionals will start to look for the opportunities elsewhere, where their knowledge seems more relevant and useful.

The creative destruction that is driven by the arrival of international companies as a result of the government policy has indeed disrupted a local market. On the surface, it has caused a shift of workforce from local to international companies, which to a certain extent may either result in upgrade of local companies to compete with the internationals or drive them out of the market (Schumpeter, J., 2013; Mazzucato, M. 2013). But the disruption

should not only be viewed in a negative sense. Competition can also leave space for cooperation opportunities. The scatter plot below is an attempt to map the participation in synergies by marking the degrees of cooperation and competition between international and local companies based on the data under each component of the EE framework (detailed explanation of the graph can be found under Appendix 3).

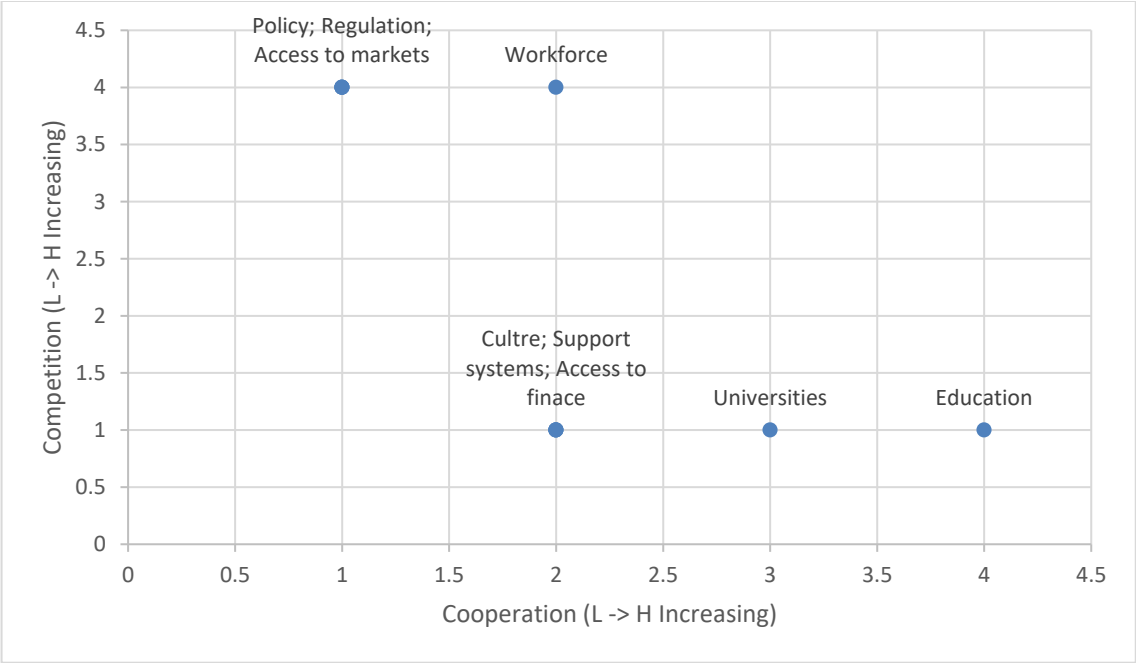


Figure 3: Degree of Participation in Synergies

Introduction of international standards for IT companies has pushed local companies to upgrade and modernize their business processes, making them more competitive. Arrival of international companies to Georgia has stimulated opportunities for education, training, and further re-training for workforce development. Universities are progressively offering programmes to train the students with skills that meet the labour market needs. Memorandums of Understanding are being signed between the IT companies and universities in Georgia who offer programmes in IT development to increase participation of businesses in job fairs, mentoring events, and the design of curricula. Therefore, provision of quality education that will close the skills gap as well as the strengthened role of the universities in IT development is one of the areas, from which both local and international IT companies benefit.

Partnerships between the university and industry directly result in the increased awareness on entrepreneurial culture. This encourages start-up mindset in the society and stimulates innovation and entrepreneurial uptake. In turn, such opportunities result in more positive competition, which yields to a more vibrant ecosystem with more engaged professionals. In this sense, even though currently international companies benefit from the existing entrepreneurial culture, in the long run, this is another area for cooperation between local and international companies.

Network effect is crucial in both access to funding and mentoring. Vibrant entrepreneurial ecosystem creates formal and informal networks, where successful founders become investors and offer mentoring support. This creates a circular feedback system into the

ecosystem. Currently, the ecosystem is not developed enough for such cooperation, but mentoring, advisory and support systems can serve as a platform to bring together knowledge and experience transfer and sharing from both international and local companies.

There is almost no competition under the access to funding and finance opportunities, because international companies do not rely on such opportunities on the local market. In general, there are weaknesses in terms of access to finance for scaling up and start-up of local businesses. Scarcity of venture capital, angel investors, access to affordable credit, high interest rates to finance microcredits create serious limitations to start-up and scale-up of businesses. There is one precedent of a Georgian company that was acquired by the U.S.-based company Impel. Therefore, such instances for scaling up can have a higher degree of cooperation under the funding opportunities.

Finally, access to global markets will be discussed in terms of the inclusion in global value chains in a section to follow.

5.2.3 Inclusion in Global Value Chains

Helmsing and Vellema in their paper acknowledge that the "governance of value chains plays a crucial role in endogenous economic growth (economic growth generated from within a business system as a direct result of internal processes)…" (Helmsing & Vellema, 2011, p.4). The authors emphasize the importance of partnerships emerging as a result of inclusive governance and endogenous development. Inclusion in the production chain is a result of embedded processes (Ibid, 2011).

Based on an example of a local start-up journey, there is an ultimate path towards internationalization – either through getting contracts abroad and qualifying for an 'international status', or through its acquisition by a bigger foreign firm. In both cases, value creation and upgrade lie outside the country. This is inconsistent with the overall vision for Georgia to be driving innovation locally in a niche software market. The future of the dual ecosystem without linkages will only drive out local companies out of the market and will not result in their vertical or horizontal integration in the Global Production Network (GPN).

In the article, Roper and Grimes (2005) elaborate on the development of Tel Aviv, Dublin and Helsinki as Global ICT nodes during the 1990s. The authors adopt the GPN lens to account both international and local processes and the synergies based on the interactions of these two towards ICT development. Two dimensions that form the basis of the comparative study include (1) extent of MNC embeddedness into host economy for the inward knowledge transfers, and (2) participation of local entrepreneurial activities in the GPN.

According to the article, in Tel Aviv the state encouraged knowledge generation through the provision of support to the development of university-based innovation hubs. ICT development in Ireland has been focused on the 'industrialisation by invitation' and FDI attraction policy. Value creation processes in Dublin are the outcome of the FDI as well as the local social and industrial policy. While discussing the development of Helsinki as a global ICT node, the emergence of Nokia as a leading global supplier has to be taken into account. Nokia's share into creating value added to the Finnish R&D is captured by companies locally. The article mentions the role of national policy in encouraging synergies in local companies in related ICT sub-sectors.

Interventions of the three cities, mostly through the inward investment policies, R&D, and access to finance are relevant to our discussion on the case of Georgia. While Tel Aviv is a niche market focused on hardware manufacturing, its relevance to the case of ICT development in Georgia is the use of knowledge base for the sectoral development through high level of support in innovation hubs in partnership with local universities. Of the three cities, Helsinki had a unicorn in the form of Nokia, whose internationalization created value chain integration of local companies. Georgia does not have such unicorn and there are no possibilities for stimulating and participating synergies between local and international companies. Finally, case of Dublin seems the most comparable to the context in Georgia: FDI policy that enabled Dublin's participation in GPN on product development, whose ownership lies elsewhere.

In the policy results chain, participation in GPN can be viewed through outsourcing of intellectual services, or product export. One will keep Georgia on a lower value producing level of the value chain, and the latter at the high value-added end. The former has been already achieved through participation of local IT talent in international projects through international outsourcing companies who entered the market through FDI policy. However, this kind of participation does not seem to be the end goal of the GoG intervention. Upscaling workforce through short-term training programmes will temporarily close the skills gap on the labour market. However, it is an intervention of 'quick wins' that will be relevant only in a short term. That is because such approach keeps the country in a position of a supplier to the global demands rather than of a driver of the innovation at the forefronts. In other words, the question is whether the country wants to keep supplying 'IT mechanics' or 'solution engineers' who feed into the positive sum game between business and society in advanced, emerging and developing countries, humanity and the planet.

Interviews as well as strategic document review point out the objective of Georgia's inclusion into global value chains. The goal of the IT policy development is inclusion of Georgia in global value chains through the local product export to foreign markets. In order to get there, first the country needs to start endogenizing knowledge to produce locally, followed by the export of those products. For the achievement of the policy goal, there needs to be a more sustainable path towards knowledge generation. That is possible by enabling the use of knowledge through encouraging different types of partnerships for technology and inward knowledge transfers.

Chapter 6
Conclusions and Recommendations

6.1 Conclusions

The main topic of the research concerns the IT ecosystem development in Georgia. The paper is assessing Georgia's ongoing plans to become an IT hub through the lens of the EE characteristics. In this paper we have used the EE Framework to describe the current situation of local ecosystem in Georgia. Indeed, the components of the EE Framework are present to a varying degree and there is a room for improvement in all nine components. Literature, interviews, and the analysis informing the study have been guided by the question on the ways in which the state intervention in the form of providing tax breaks to IT companies with the 'international status' is shaping the local entrepreneurial ecosystem to make Georgia an IT hub. The EE Framework stipulates that the success of the economy lies in interconnectedness of the components and their linkages as it plays out while operationalized.

The case of Georgia and the state intervention by the Government of Georgia show that the theory falls short in practice, and the efforts to develop each of the nine components of the ecosystem can result in a dual closed-off ecosystems that do not interact to result in a vibrant entrepreneurial activity. Drawing on the data, the state intervention for encouraging creation of the vibrant IT ecosystem in Georgia has resulted in creation of two ecosystems - international companies that operate in Georgia as a result of an inward investment, and local companies that were already existing on the local market.

Idea behind market liberalization is to support knowledge generation. However, knowledge generation is insufficient if there are no measures in place to encourage endogenization of that knowledge. Internationalization of a local market that lacks linkages between the elements, actors, and processes does not feed into the objective. In fact, it creates an unequal playing field for the international and local companies, where local companies do not have a chance to integrate in production chains with the international ones. Establishing a knowledge society is a noble goal that is socially motivated and in theory has a perspective to bring economic prosperity to the country. Creating a positive sum game is a complex task, which has put the state in a challenging position. Addressing elements of the ecosystem to make it more vibrant is one of the efforts towards the policy implementation. Interventions remain fragmented as they lack the measures to link the elements of the ecosystem.

The study has showed the outcome of the state intervention who in efforts to encourage endogenous innovation development created two closed ecosystems, which does not make endogenization of knowledge possible. The discussion above reveals that local companies are on the verge of being driven out of the market. This is due to a lack of opportunities, inability to compete with the international companies, and subsequent staff retention stemming from these two causes. On the other hand, international companies find favourable conditions and make use of the local ecosystem base to build and grow their successful operations in the country, mostly through hiring talent locally and outsourcing their services to work on products whose ownership lies elsewhere. How then can the Georgian government mitigate this problem and leverage the companies that are already in the country to help achieve the goals of Georgia's development agenda?

The efforts of the government to encourage the move of international IT companies to Georgia is mainly viewed for the purposes of attracting talent and creating IT talent locally for economic prosperity of all. While policy efforts to incentivize FDI attraction have been effective, which in turn is contributing to the provision of IT talent, there is a leap from that step to encouraging product development locally. That limitation is supported and explained by the weakness of the components of the EE framework that fall short of the necessary conditions to encourage entrepreneurial development where knowledge ownership lies locally.

We have established throughout the paper that there is no homogeneous understanding of Georgia as an IT Hub. For the purposes of this paper, we can define it as the one that is based on the underlying context to shifting to a knowledge-based economy that is guided by knowledge generation and production for value creation and upgrade. In order to see the causal relationship and linearity of the ecosystem working towards that goal, it is clear that endogenous firms alone are not sufficient for such knowledge generation. Nonetheless, international companies, to secure their 'international status' and enjoy significant tax benefits in the country, are not able to participate in contracts locally. This leads to an environment with two ecosystems existing simultaneously in a locality, where 'international' companies are engaged in global value chains, and the locals are fighting for opportunities for their survival on the market.

As discussed above, the state vision for Georgia's development has been through the FDI attraction. This intervention lies on the assumption that the local economy can be developed through bringing investments from TNCs. Besides creating employment opportunities, such a strategy enabled the country's inclusion into global value chains. Definition of global value chains as physical value added to a product from production through sales allows to view IT product as part of a global value chain. It replicates the similar power asymmetries with the low value added at the bottom of the chain is provided by the countries of the Global South, and the final value claimed by the countries of the Global North mostly.

Currently, Georgia is operating in the context of two closed ecosystems that don't interact with one another. In this scenario, there are no opportunities for inward knowledge or technology transfers. In order for these spillovers to take place, there needs to be a space that encourages participation in potential synergies created by such interactions. The targeted policy could encourage them to remain in competition as firms with self-interest, but also work together for joint gains through cooperating under various components towards more vibrant ecosystem.

The case of Georgia showcases a missing piece of the theory that underlines the importance of linkages to set the components of the ecosystem in motion. Our study illustrates that even with all the favourable elements at hand, the policy might miss the overarching goal and not result in the positive sum game between the business and society when the linkages are not encouraged.

Georgia is in a good place to accomplish its goal as a tech hub, but serious considerations need to be made so as to not miss the opportunity. Opportunity window in Georgia has opened, so the time is ripe to focus on encouraging the interconnectedness of the two ecosystems through partnerships beyond the relations between the nine components of the

entrepreneurial ecosystem. Therefore, the task is to understand possible implications of current interventions and explore ways in which support could actually lead to the product development locally.

6.2 Recommendations

Main issue hindering the achievement of the next step of the developmental vision – i.e., knowledge production and value upgrade is the lack of encouragement of synergies between the two ecosystems created thus far. Addressing this bottleneck responds to the challenge of brain drain of local talent for knowledge creation elsewhere.

The concept of Entrepreneurial State, co-creation of new markets through assuming risks and market regulations, and a mission-oriented institutions with mission policies are key to this process.

GovTech model is a solution by the state to encourage opportunities for the participation by local companies. But the GovTech model is insufficient to help the development of local ecosystem if there are no efforts made to embed value chains in the local economy through partnerships.

More public and private initiatives to mobilize the current talent and stimulate partnerships for technology and knowledge transfer will allow for and strengthen the interconnectedness of the two ecosystems.

More active engagement of IT companies and participation by academia in partnerships to raise awareness on the entrepreneurial mindset will encourage innovative and entrepreneurial uptake among the society.

Finally, activating innovation hubs and encouraging interlinkages on the TH model will feed into the process of knowledge generation, value creation and knowledge generation.

Appendices

Appendix 1
List of Stakeholders Interviewed and Consulted

Name	Organization	Interview Date
State Representatives		
Irakli Nadareishvili	Deputy Minister, Ministry of Economy and Sustainable Development of Georgia (overseeing Departments for Economic Policy, Investment Policy and Support, LEPL GITA, LEPL Enterprise Georgia)	18 July 2022
Keti Kebuladze	Export Department, LEPL Enterprise Georgia	21 Jul 2022
Tamta Japaridze	Senior Investor Relations Manager, LEPL Enterprise Georgia	26 Jul 2022
Mariam Lashkhi	Member of the Parliament, Education and Science Committee, Parliament of Georgia (former Head of International Relations Department, GITA)	05 Aug 2022
Mariam Sharangia	Director, Strategic Development Department, GITA	19 Aug 2022
International Donor Organizations		
Aleksandre Mzhavia	Project Manager, GENIE, World Bank	17 July 2022
Paata Sirbiladze	E-commerce and ICT Lead, The USAID Economic Security Program, DAI (USAID contractor)	19 July 2022
Tornike Jobava	Programme Coordinator, Digital Economic Skills Development, World Bank	21 July 2022
Mikheil Skhiereli	Programme Expert, SME Development and DCFTA in Georgia, GIZ	27 Jul 2022
Nino Samvelidze	Programme Manager, EU4Smart Economic Development, Delegation of the European Union to Georgia	01 Aug 2022
Local Stakeholders		
David Kiziria	Coordinator, Georgian Digital Transformation Consortium	14 July 2022
Mariam Sumbadze	Director, ICT Cluster Georgia	02 Aug 2022
Aleksi Aleksishvili	CEO, Policy and Management Consulting Group (Signatory of Consortium for Digital Transformation; former Minister of Finance implementing Doing Business Reform in Georgia)	05 Aug 2022
Mariam Shoshiashvili	Head of Career Development Center, Business and Technology University Georgia	08 Aug 2022
IT Companies with 'International Status'		
Natia Sirbiladze	CEO Georgia, ExactPro	02 Aug 2022
David Japaridze	CEO, AzRy LLC	04 Aug 2022
Teimuraz Maghradze	Head of Acceleration Program, Sweeft Digital	04 Aug 2022

Ana Buchukuri	Financial and Administrative Assistant, Exadel	24 Aug 2022
Sopo Chkoidze	Vice President of Operations, Impel (Co-founder of Pulsar AI, acquired by Impel)	24 Aug 2022
Elene Beridze	Financial Manager, DataArt	26 Aug 2022
Sergey Ageenko	Director, EPAM Systems	15 Sep 2022

Appendix 2
Indicative Questionnaire for Guided Semi-Structured Interviews

- Conversation with the **State Representatives** focused on three phases of designing the policy, its implementation, and future vision.
  - How/why did you select ICT sector as a target industry?
  - How did you define list of permitted activities under the tax incentives offered to international ICT companies?
  - What was the logic of policy intervention?
  - What was the baseline situation during the time of policy design?
  - What kind of change do you expect the policy to achieve?
  - How do you communicate (reach) the existing policy to the target groups (international ICT companies)?
  - How do you support the companies in their relocation process?
  - What kind of support, if any, do you provide to the companies in their operation on the ground?
  - What are the other support measures that you provide for the sectoral development?
    - Partnerships
    - Fundings
    - Trainings
    - Employment opportunities
  - What is your vision for the future of the sectoral development and its impact on local context?

- Interviews with **IT companies with 'International Status'** were structured into three phases and accounted for the experiences before, during, and after relocation to Georgia.

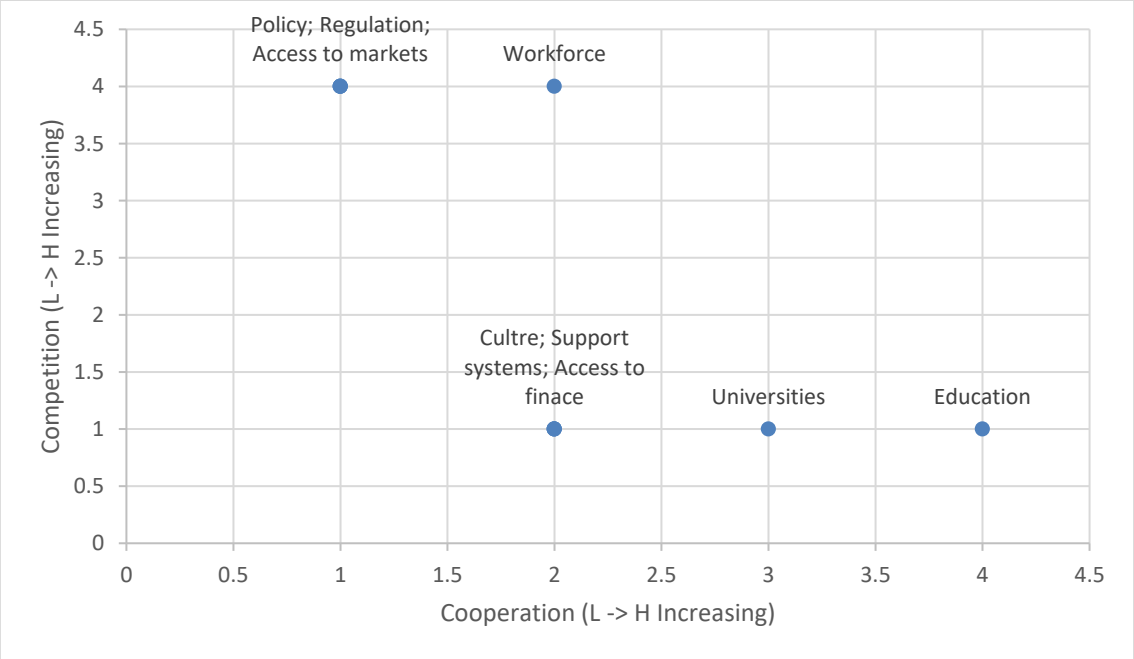
  <u>Considerations before relocation:</u>
  - Description of core company activities and main clients
  - What is the geographical scope of your operations?
  - What is your business development strategy?
  - What were the main elements you were looking for when considering a new location for your office?
  - What led you to consider Georgia as a new location for your office?
  - What was your perception of environment in Georgia?
  - What were the key points that attracted you to Georgia?
  - Were you familiar with the tax break policy and what was its importance for your move?
  - Were you considering any other locations? If so, which ones, and what were the key points of attraction there?

  <u>Process of relocation:</u>
  - How would you describe the process of relocation?
  - How would you describe the government support in the process, if any?

• How does it compare to your previous experiences of setting up new offices in other countries? (If relevant) Experiences after relocation: • How do you find business environment in Georgia after relocation? • How did your expectations measure up to the reality on the ground? (Logistics, partnerships, workforce, etc.) • What are the main areas that are functioning well on the ground? • What were the main challenges encountered? • What are the main areas to be improved? • How would you describe support from the government in various areas of your operations? • How do you envision future of the industry in Georgia, and continuation of your activities in the country in this regard?
Questionnaire for **local stakeholders** explored the ICT ecosystem for local companies, and impact of the tax incentives on local stakeholders. • How would you describe the ICT ecosystem and its development in Georgia? • What are the core activities and main clients supplied by Georgian ICT companies? • How would you describe the role of Georgian ICT companies in strengthening the sector? • How, if any, has the government support been to Georgian ICT companies to aid their operations? • How do Georgian ICT companies experience the impact of tax incentives of 2020? • How would you assess the transformation of the sector since the introduction of tax incentives? • What are the main challenges experienced by the local ICT companies? • What would you identify as the main areas, where support is needed? • What is your vision of the future of the sector in this country?

Appendix 3

Representation of participation of local and international IT companies in synergies on a scatter plot



Level: 1-5; H = High (>=3); L = Low (<3)

EE Framework Components	X-axis = Cooperation	Y-axis = Competition
Policy	1	4
Regulation	1	4
Availability of finance	2	1
Culture	2	1
Support Systems	2	1
Universities as Catalysts	3	1
Education & Training	4	1
Workforce	2	4
Access to markets	1	4

References

Andersen, E. (1996). Evolutionary economics and chaos theory: New directions in technology studies. *Research Policy*.

Banerjee, S. B., & Jackson, L. (2017). Microfinance and the business of poverty reduction: Critical perspectives from rural Bangladesh. *Human Relations*, 70(1), 63–91. https://doi.org/10.1177/0018726716640865

Becker, M.C., Knudsen, T. and Swedberg, R. (2012) "Schumpeter's theory of Economic Development: 100 Years of development," *Journal of Evolutionary Economics*, 22(5), pp. 917–933. Available at: https://doi.org/10.1007/s00191-012-0297-x.

Budden, P. and Murray, F., 2018. An MIT framework for innovation ecosystem policy.

Cairney, P. (2012). What is Public Policy? How Should We study It? In *Understanding public policy: Theories and issues.* (pp. 1-43).

Clark, D.N., Reboud, S., Toutain, O., Ballereau, V. and Mazzarol, T., 2021. Entrepreneurial education: an entrepreneurial ecosystem approach. *Journal of Management & Organization*, *27*(4), pp.694-714.

Demytrie, R. (2022) *Russia faces brain drain as thousands flee abroad*, *BBC News*. BBC. Available at: https://www.bbc.com/news/world-europe-60697763 (Accessed: November 14, 2022).

Elliott, John E. (1983). Schumpeter and the theory of capitalist economic development. *Journal of Economic Behavior & Organization, 4*(4), 277-309. https://doi.org/10.1016/0167-2681(83)90012-4

EPF, CRRC (2018). "RE-THINKING STATE-LED DEVELOPMENT IN AZERBAIJAN: TO WHAT EXTENT DO DEVELOPMENTAL POLICIES LEAD TO A TRANSITION TO A KNOWLEDGE-DRIVEN ECONOMY?" Abasli, I. Study Series on Public Policy Issues. Available at: http://crrc.az/wp-content/uploads/2014/12/StudySeriesOnPublicPolicyIssues_EPF_CRRCAz_Baku2018.pdf

Evans, P.,. (1989). Predatory, developmental and other apparatuses: a comparative political economy perspective on the Third World State. *Sociological Forum*, 4(4), 566-683.

Gerring, J. (2007). "Techniques for Choosing Cases." In *Case study research: Principles and practices* (pp. 86-150).

Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, Christel M.J. Vermeesch. (2011). Determining evaluation questions. In *Impact Evaluation in Practice* (pp. 21-28).

Government of Georgia (2014) Social-economic Development Strategy of Georgia "Georgia 2020", Available at: https://www.adb.org/sites/default/files/linked-documents/cps-geo-2014-2018-sd-01.pdf

Helmsing, A.H.J. and Vellema, S., 2011. Value chain governance and inclusive endogenous development. *Development Policy Review Network Phase II–Report, http://www. search4dev. nl/document/208683. Accessed*, *21*.

IDFI, eGA (2022). DRIVE: Digital Research and Impact for Vulnerable E-citizens Project, Available at: https://ega.ee/wp-content/uploads/2021/05/DRIVE_Georgia_report_DVG_2022.pdf

Isenberg, D. (2010) "The Big Idea: How to Start an Entrepreneurial Revolution," *Harvard Business Review*, June. Available at: https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution (Accessed: November 14, 2022).

Jessop, B., 2005. Cultural political economy, the knowledge-based economy, and the state. In *Technological Economy* (pp. 152-174). Routledge.

Kingdon, J. (1995). The Policy Window, and Joining the Streams. In *Agendas, alternatives, and public policies* (pp. 165-195).

Lawton Smith, H. and Leydesdorff, L., 2014. The Triple Helix in the context of global change: dynamics and challenges. *Prometheus*, *32*(4), pp.321-336.

Lewis, D. (2019). "Big D" and "little d": two types of twenty-first century development? *Third World Quarterly, 40(11),* 1957-1975.

Leydesdorff, L., 2012. The Triple Helix of university-industry-government relations (February 2012). *Encyclopedia of Creativity, Innovation, and Entrepreneurship, New York: Springer*.

Leydesdorff, L. and Meyer, M., 2006. Triple Helix indicators of knowledge-based innovation systems: Introduction to the special issue. *Research policy*, *35*(10), pp.1441-1449.

MacKinnon, D. (2008). Evolution, Path Dependence and Economic Geography. *Geography Compass, 2*(5), 1449-1463. https://doi.org/10/1111/j.1749-8189.2008.00148.x

Matsne (2020). On determining the status of an international company, and approving the list of permitted activities and certain expenses. *სსიპ "საქართველოს საკანონმდებლო მაცნე"*. Available at: https://matsne.gov.ge/en/document/view/5012362?publication=0 (Accessed: November 14, 2022).

Mazzarol, T., 2014. *Growing and sustaining entrepreneurial ecosystems: What they are and the role of government policy*. [online] Smallbusiness.report. Available at: <https://smallbusiness.report/Resources/Whitepapers/28ea2090-9f50-4220-a098-a9435a2dbe20_iicie.pdf> [Accessed 9 June 2022].

Mazzucato, M., 2011. The entrepreneurial state. *Soundings*, *49*(49), pp.131-142.

Mazzucato, M., 2013. Financing innovation: creative destruction vs. destructive creation. *Industrial and Corporate Change*, *22*(4), pp.851-867.

Mazzucato, M., 2016. From market fixing to market-creating: a new framework for innovation policy. *Industry and Innovation*, *23*(2), pp.140-156.

Mazzucato, M., 2017. Mission-oriented innovation policy. *UCL Institute for innovation and public purpose working paper, 1*.

Mazzucato, M. and Semieniuk, G., 2017. Public financing of innovation: new questions. *Oxford Review of Economic Policy*, *33*(1), pp.24-48.

Mazzucato, M., 2018. Mission-oriented innovation policies: challenges and opportunities. *Industrial and Corporate Change*, *27*(5), pp.803-815.

Mazzucato, M. and Perez, C., 2015. Innovation as growth policy. *The Triple Challenge for Europe*, pp.229-64.

Ministry of Economy and Sustainable Development of Georgia (2017). SME Development Strategy of Georgia 2016-2020, *Economy.ge.* Available at: http://www.economy.ge/uploads/files/2017/ek_politika/eng_sme_development_strategy.pdf

Motkin, A. (2018). Changing Economy Changing Society IT Industry in Post-Soviet Countries, StrategEast, Available at: https://www.strategeast.org/wp-content/uploads/2018/05/Changing-Economy-Changing-Society-1.pdf

OECD (2020), *SME Policy Index: Eastern Partner Countries 2020: Assessing the Implementation of the Small Business Act for Europe*, SME Policy Index, OECD Publishing, Paris/European Union, Brussels, https://doi.org/10.1787/8b45614b-en.

OECD/Eurostat (2005), *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition*, The Measurement of Scientific and Technological Activities, OECD Publishing, Paris, https://doi.org/10.1787/9789264013100-en.

Perez, C. (2019) "Capitalism, technology and innovation," *Rethinking Capitalism undergraduate module Week 10 academic lecture*, London: UCL Institute for Innovation and Public Purpose. Available at: https://medium.com/iipp-blog/carlota-perez-the-fourth-industrial-revolution-challenges-and-opportunities-8b695b42379b (Accessed: November 14, 2022).

Perez, C. (2020) "TOWARDS SMART, GREEN, FAIR AND GLOBAL GROWTH," *Gaia Global Forum 2020. Gaia Global Forum 2020*, 10 July. Available at: https://www.youtube.com/watch?v=ksAxrLkbBB8&ab_channel=CarlotaPerez (Accessed: November 14, 2022).

Perez, C. (2021) "Using the history of technological revolutions to understand the present and shape the future," *The Progressive Post*. Available at: https://progressivepost.eu/using-the-history-of-technological-revolutions-to-understand-the-present-and-shape-the-future/ (Accessed: November 15, 2022).

PMCG (2021). Shared Intellectual Services. Policy Brief, Available at: https://www.pmcresearch.org/policypapers_file/0e4c611ba1d618c18.pdf

Revenue Services of Georgia (2020) InternationalOrgStatus, *rs.ge*. Available at: https://rs.ge/InternationalOrgStatus (Accessed: November 14, 2022).

Rethel, L. and Sinclair, T.J., 2014. Innovation and the entrepreneurial state in Asia: Mechanisms of bond market development. *Asian studies review*, *38*(4), pp.564-581.

Roper, S. and Grimes, S., 2005. Wireless valley, silicon wadi and digital island—Helsinki, Tel Aviv and Dublin and the ICT global production network. *Geoforum*, 36(3), pp.297-313.

Sachs, W.,. (2010). Introduction. In *The Development Dictionary: A Guide to Knowledge as Power* (pp. 15-20).

Schumpeter, J.A. (1976). Capitalism, Socialism and Democracy (1st ed.). Routledge. https://doi.org/10.4324/9780203202050

World Bank (2013). Georgia: Skills Mismatch and Unemployment, Labor Market Challenges. Washington, DC. *World Bank*. Available at: https://openknowledge.worldbank.org/handle/10986/15985

World Bank (2020). "Doing Business 2020," World Bank Publications - Books, The World Bank Group, number 32436, November.

Yin, R.K. (2009). "Designing Case Studies: Identifying Your Case(s) and Establishing the Logic of Your Case Study." In *Case study research: Design and methods* (pp. 25-60).