

# PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC23164

<b>Project Name</b>	Georgia National Innovation Ecosystem (GENIE) Project (P152441)
<b>Region</b>	EUROPE AND CENTRAL ASIA
<b>Country</b>	Georgia
<b>Sector(s)</b>	General information and communications sector (30%), Other industry (50%), General industry and trade sector (20%)
<b>Theme(s)</b>	Infrastructure services for private sector development (20%), Micro, Small and Medium Enterprise support (20%), Export development and competitiveness (20%), Technology diffusion (20%), Education for the knowledge economy (20%)
<b>Lending Instrument</b>	Investment Project Financing
<b>Project ID</b>	P152441
<b>Borrower(s)</b>	Georgia
<b>Implementing Agency</b>	Georgia's Innovation and Technology Agency
<b>Environmental Category</b>	C-Not Required
<b>Date PID Prepared/ Updated</b>	12-Mar-2015
<b>Date PID Approved/ Disclosed</b>	07-Apr-2015
<b>Estimated Date of Appraisal Completion</b>	31-Jul-2015
<b>Estimated Date of Board Approval</b>	12-Nov-2015
<b>Concept Review Decision</b>	Track II - The review did authorize the preparation to continue

## I. Introduction and Context

### Country Context

Since the early 2000s, Georgia has been implementing far-reaching reforms to improve the business environment, spur investment, and shake off the lingering rigidities of a centrally planned economy. Following the fall of the Soviet Union and through the early 2000s, Georgia was among the poorest-performing transition economies in the region mainly due to conflict and governance issues, and GDP by 2003 had barely recovered to 40 percent of its 1989 level. Starting in 2004, reforms undertaken to strengthen public finances, deregulate markets, fight pervasive corruption, liberalize trade, and upgrade infrastructure helped attract record foreign direct investment (FDI) inflows (peaking at 16.5 percent of GDP in 2007) and brought the country global recognition as a top reformer. In the process, Georgia's Doing Business ranking improved from 112th in 2005 to 15th in

2015 and its Global Competitiveness ranking improved from 90th place in 2008-2009 to 69th in 2014-15.

While these reforms have helped to kick start GDP growth, the economy has still not fully returned to its pre-transition size and unemployment remains a significant public policy concern. GDP growth averaged close to 6 percent per year during 2004-2013, well above that of EU new member states and close to that of emerging economies in Latin America and Asia, and proved resilient in the aftermath of the global financial crisis and the conflict with Russia in 2008. However, Georgia remains one of the only countries in Europe and Central Asia (ECA) that has not yet caught up to its 1990 level of real GDP. Although significant new employment was created during the transition period, especially in the service sector, the combination of labor shedding in the public sector and economic transformation in some of the older sectors meant there was little in the way of net job creation. Consequently, unemployment has stayed stubbornly high, never falling below the 12-13 percent range, with a stronger incidence among women; and wages have remained stagnant.

The sustainability of this growth in the medium term is also tenuous amidst slowing productivity growth and declining export competitiveness. GDP growth between 2004 and 2013 was powered largely by non-tradable sectors such as services and construction, and, since the 2009 crisis, by the rapid expansion in public investment, which now stands at a record 8 percent of GDP, well above ECA averages. GDP growth also benefited from a spurt in productivity growth—11.5 percent, on average, between 2004 and 2008—that is usually observed in transition economies after broad-based market reforms are launched, but growth which again was concentrated in non-tradable sectors (where the bulk of FDI was channeled), and has slowed to an average rate of 3.9 percent since 2010. Meanwhile, manufacturing exports have stagnated as a share of GDP and total exports have remained under 40 percent of GDP, well below the average for developing Asia and non-oil ECA countries. The composition and dynamics of Georgia’s export basket also reveal significant weaknesses and loss of competitiveness: (i) declining market share in key markets and products; (ii) stagnant and low product sophistication and quality given Georgia’s level of development; (iii) lack of product diversification, with scrap metal, re-export of used cars, wine and processed food, water and tourism still dominating; and (iv) low survival of export firms compared to the rest of the region.

Prospects for resurgence in productivity growth and exports are constrained by low levels of innovation, human capital development, and entrepreneurship. Innovation and entrepreneurship are key drivers of job creation and productivity growth. However, Georgia lags its regional (ECA) peers and other low-and-middle income countries on various global indicators of these dimensions: (1) in the World Economic Forum Global Competitiveness Index, it ranks 77 out of 144 due to low “efficiency enhancers” (skills and education, innovation, business sophistication, goods and input markets, financial markets); (2) in the WIPO-INSEAD-Cornell Global Innovation Index (GII), it is in the category of “inefficient innovators” at 73 out of 141 countries; (3) in the Global Technology Index, it is 88th out of 142 due to low ICT use and sophistication; (4) in the WBI Knowledge Economy Index it has significantly lower levels of innovation than the ECA average; and (5) in the World Economic Forum’s Network Readiness Index, it is ranked 60 out of 148. Low levels of entrepreneurship are evidenced by the fact that only 4 percent Georgians own businesses compared to 16 percent in other developing countries.

The Government seeks to promote inclusive growth and develop an innovation-driven and knowledge-based economy. The Government’s inclusive growth agenda—defined in the

Government’s Socioeconomic Development Strategy 2020 (SDS)—foresees the need to strengthen human capital, improve private sector competitiveness and productivity through a focus on SMEs, increase access to finance, and strengthen the investment climate. These improvements would help reduce the economy’s recent reliance on public investment as the main source of growth. The Government is keen to develop the capacity, services, and infrastructure for Georgia to develop itself as an innovative, knowledge-based economy. For this, it is necessary to unlock key legal, regulatory, and institutional constraints for private sector growth and innovation, provide infrastructure and services to facilitate growth of innovative enterprises, and strengthen skills to ensure that workers are globally competitive.

### **Sectoral and Institutional Context**

#### Sector context

Low performance in the Micro, Small and Medium Enterprise (MSME) sector is at the root of Georgia’s innovation, productivity, and competitiveness challenges. Although MSMEs in Georgia represent 94 percent of registered businesses and more than 47 percent of formal jobs, they account for less than 20 percent of GDP as compared to global averages of 40-50 percent and 60 percent in the ECA region. Most of this is due to their poor productivity, which is three times lower than that of large enterprises, and to their low rates of innovation. In the recent World Bank Fostering Entrepreneurship Report, only 7 percent of Georgian MSMEs surveyed indicated that they had introduced a new or substantially improved product or service in the previous three years (compared to an estimated 67 percent in neighboring Armenia, for example). Furthermore, many MSMEs struggle with survival during the first year of operations and still do not have access to external finance in the 4th or 5th year after inception. As a result, only a small number of SMEs in Georgia survive more than five years, and the majority of these businesses stay micro and small, with less than 12 employees on average (as compared to 24 in Armenia and 44 in Azerbaijan). Specialized support to Georgian SMEs to facilitate market, business, and export development is also absent.

The capacity of these MSMEs to innovate and move up the value chain is constrained by four key interrelated factors:

- Low “innovation-readiness” of workforce and firms. Currently in Georgia, entrepreneurial education is non-existent, and the Georgian educational system is not building a pool of talent needed for sustained innovative R&D. Georgia lags in both education and tertiary education (Global Innovation Index Report 2013, Table 3) and produces a limited number and variable quality of graduates in science and engineering. There has been also a dramatic drop in enrolment of students in Georgian Vocational Education and Training (VET). Moreover, Georgia’s education policy has not been aligned to the demands of modern industrial development or to prepare graduates for working in private business. The majority of teaching programs at Georgian universities do not meet international standards, and their graduates are not well prepared to work in high-technology oriented companies. A World Bank survey of employers found that one in five firms report that workforce education is a severe problem, one that poses a bigger challenge to employers than payroll taxes or business licensing.
- Underdeveloped innovation infrastructure. Incubators, accelerators, co-working spaces, and Technology transfer offices (TTO) – the most commonly used instruments to foster start-ups and technological innovations at the enterprise level – are few and far between in Georgia. Those that exist have limited capacity, funding, and staff expertise. There are also few innovation-based

competitions and makerspaces for prototyping (e.g. Fabrication Laboratories or “Fab-Labs” and Innovation Labs or “iLabs”), but no dedicated facilities hosting ICT startups, and no technology parks, except the few IT Centers at universities with little in the way of resources. The scarcity of innovation infrastructure is particularly acute in urban centers outside Tbilisi and in all rural areas, where access to public and private information on world technology trends and novelties are particularly limited.

- Access to finance for innovation: According to the 2013-2014 Global Competitiveness Report, MSMEs in Georgia cite limited access to finance as their top constraint to growth. Out of 133,802 MSMEs, only 12 percent have a loan and 15 percent have access to credit, with the remainder financing their investments internally. Around 94 percent of this credit to MSMEs is provided by private commercial banks, but with high collateral requirements usually in the form of real estate and reaching 220 percent of the loan amount. Furthermore, loans are provided at a relatively high cost with net interest margin of Georgian banks (the differential between the rate they charge on loans and the rate they pay on deposits) at three times higher in Georgia than in Estonia and 20 percent higher than in Armenia. Even at these expensive terms, Georgian banks are still reluctant to provide loans for innovative projects due to higher risks and lack of understanding of the innovation life-cycle. Alternative financing sources, such as angel, seed, venture capital, matching grants and leasing/factoring are largely unavailable due to underdeveloped market infrastructure and business practices for equity and venture capital financing.

- Low uptake of Information and Communication Technology (ICT). Despite some innovation success stories by Georgian companies adopting state-of-the-art ICT through imports and FDI, overall use of ICT in industry is still limited and its competitive benefits are not properly understood by many firms, particularly MSMEs. The ICT infrastructure in Georgia, however, is strong and growing. Telecommunications networks are widespread due to the liberalization of the sector in 2003 and significant private investments since then. Mobile telephone subscriptions are now at 109 percent of the population and the estimated Internet user base is 46 percent of population. With the right training and supporting investments, especially in broadband connectivity, where more can be done to connect rural areas and improve Georgia’s standing compared with its western peers (as of 2012, national broadband penetration rate was 31.2 percent of population, mostly concentrated in cities), the ICT sector can serve as key enabler and a driver of jobs and exports by building on its relatively strong infrastructure and successes in using technology within Government.

#### Institutional context

Georgia’s national innovation ecosystem (NIE) can be conceptualized as a network of organizations, rules, and mechanisms that affect how the country generates, disseminates and uses knowledge and technology. NIEs are generally complex and interactive with many independent agents whose actions need to be coordinated and aligned with strong reinforcing incentives if they are to work well together. A stylized model of NIEs highlights the interplay of six major enablers in an innovation and entrepreneurship driven economy: strategy, policy, infrastructure, linkages, financing, and talent. The key issues behind each of these elements, which are common across countries, are summarized in Figure (A Framework for the Innovation & Entrepreneurship Ecosystem).

Recognizing the importance of a stronger NIE for promoting ICT-enabled innovation and boosting the economy’s competitiveness and growth, the Georgian government has already launched

initiatives in several of the core NIE dimensions. These initiatives include:

- Strategy: The Government is preparing a National Innovation Strategy 2020, with the guidance and technical assistance of the World Bank under the CIIP, where the overarching vision proposed for the Government's consideration is to "maximize Georgia's growth potential by creating an entrepreneurial, knowledge-based economy, where innovation-led growth will foster increased economic productivity and growth." The Government has also defined ambitious goals for the development of the ICT sector by 2020, including (i) 40,000 IT experts working in the country; (ii) IT exports reaching \$1.1 billion; and (iii) the country ranking in the top 10 of global ICT-related rankings.

- Policy. Under the support of the World Bank Private Sector Competitiveness DPO, a National Research and Innovation Council (NRNC) was established in February 2015 as a strategic coordinator of the country's innovation policies. The Council is tasked with developing strategic policies and programs to promote business innovation and development, research, advanced human capital, technology transfer, technological infrastructure, attraction of innovative FDI, and development of an export basket more aligned with world demand for high-tech products and services. The Council's long-term focus will be to reduce inconsistencies in policymaking generated by the political cycle and the subsequent short-term horizon of many policy decisions. This "second generation" of reforms is aimed at fostering innovation and entrepreneurship and addressing remaining business environment constraints by facilitating public-private dialogue, enforcing property and intellectual property rights, establishing a competition framework aligned with international standards, and connecting SMEs to markets, finance, and information. These measures should help Georgia move beyond de jure first-generation business environment reforms and towards stronger export competitiveness and a more sustainable growth model based on a larger share of high value-added goods and services.

- Linkages. A new entity dedicated to the development and coordination of the innovation ecosystem, the Georgia Innovation and Technology Agency (GITA), was created in March 2014 under the Ministry of Economy and Sustainable Development (MOESD), with support from the World Bank. GITA's primary objectives are coordination of Georgia's innovation ecosystem and implementation of measures supporting innovation, particularly programs advancing private and public sector knowledge, innovation, commercialization of research, and promoting innovative entrepreneurship. In addition, the Georgia Entrepreneurship Development Agency (GEDA) was established in April, 2014 under the MOESD. GEDA's objective is to support SME development, promote entrepreneurship and development of an entrepreneurial culture, and nurture growth and sustainability of export products and services.

- Skills. The reform of tertiary teaching and public research is being targeted by a State Commission on Education and Science Reforms. The Ministry of Education and Science (MES) and MOESD have also committed to cooperate on better alignment of education policy to market needs and international best practices, and in raising the overall quality of the Georgian educational system. In support of employment goals laid out for the ICT sector, GITA has already sponsored the training of 60 IT specialist trainers, who are set to open 30 of their own training facilities in 2015 and help equip around 2,400 junior-level students with the relevant skills for emerging jobs in the ICT field. An ongoing World Bank AAA will identify the specific challenges in skills availability, and will define a possible mechanism to bridge the gaps between employment and education, starting with ICT-related jobs as a pilot.

- Financing. In late 2014, GITA launched a mini-grant program for technology innovation open to individuals, NGOs, research organizations and universities. Building on project evaluation by international experts, grants of up \$25,000 were awarded to proposals aimed at establishing and/or further developing the commercial viability of a new technology-based product, process or service and finding new applications of existing technologies. The competition was well-received and generated significant interest (150 applications across a variety of technological fields were received out of which 17 projects were approved for financing), but was not on the scale that is ultimately needed to address ongoing constraints to financing faced by innovators. It also revealed some weaknesses in the capacity of many applicants to prepare and present grant proposals.

- Infrastructure. GITA has already begun construction of a Technology Park in Tbilisi (set to be completed in September 2015) that will serve as the anchor of a proposed national network of innovation centers aimed at stimulating innovative activities and promoting awareness of the benefits of innovation. It is also in the process of partnering with the Georgian National Academy of Sciences (GNAS) to establish a bio-technology center in Tbilisi (or one of the other major cities) that will help Georgia realize its market potential in innovative applications of bacteria, enzymes, phages, and agribusiness technologies. Furthermore, GITA has piloted two fabrication labs (Fab Labs) and three innovation labs (iLabs) for mobile programming, computer gaming, and digital graphics. In collaboration with the Georgian National Communication Commission (GNCC), GITA is also in the initial stages of designing a Public-Private Partnership (PPP) to construct a national backbone network that will provide broadband connectivity to about 2,000 villages across Georgia.

As a long-term strategic partner in Georgia's national innovation ecosystem development, the World Bank is well positioned to complement and advance these initial efforts by the Government. The GENIE Project will complement and support ongoing WBG activities in Georgia in the area of competitiveness and innovation. GENIE supplements CIIP TA (2014-2017) under which the WBG supports Georgia's efforts in developing and implementing competitiveness strategy and advancing innovation-led growth by focusing on three areas: (i) facilitating development of Georgia's innovation strategy; (ii) building institutional capacity and promoting development of innovation infrastructure, R&D commercialization, and enhancing IPR, among others; (iii) fostering competitiveness of SMEs, with the focus on high value added manufacturing. The project also builds upon World Bank ongoing AAA work on ICT and employment (FY15), and on ICT to support innovation and employment (FY14).

The GENIE Project also complements the Private Sector Competitiveness DPO series. It will directly complement and support the DPOs, particularly with regard to the reforms organized around two out of three pillars. GENIE will complement Pillar 1's focus on second generation business environment reforms to strengthen public-private dialogue, support entrepreneurship and SMEs, and enhance public procurement. Additionally, GENIE will complement Pillar 3 by increasing firms' capacity to innovate and to export through reforms to develop the ICT sector and strengthen Georgia's national innovation system and quality infrastructure.

### **Relationship to CAS**

The proposed Project is a core element of the latest CPS (FY2014-17), and contributes to the CPS goal of enabling private sector-led job creation through improved competitiveness. The private sector is expected to be the main driver of employment creation and provider of income opportunities for the bottom 40 percent of the population. This project contributes directly to efforts

to remove important constraints in skills, infrastructure, technology and finance that prevent the private sector from thriving. It is also part of a broader engagement of the WBG in Georgia. An ICT note has also recently been finalized which has helped identify the CPS priorities for innovation and skills, and further work is planned to assist in defining and implementing policies and programs to position ICT as both a source and enabler of innovation and job creation in Georgia.

## **II. Proposed Development Objective(s)**

### **Proposed Development Objective(s) (From PCN)**

The project development objective is to enhance the national innovation ecosystem in Georgia to stimulate the growth of innovative activities and expand rural Internet connectivity.

### **Key Results (From PCN)**

- a. Increased innovation brought to market by Georgian enterprises (percent of firms that have introduced a new product, process, marketing, or organizational innovation over the previous year)
- b. Improvement in Georgia's composite score on the Global Innovation Index
- c. Access to internet services (number of subscribers per 100 people; Core indicator)

## **III. Preliminary Description**

### **Concept Description**

#### **Component 1: Infrastructure for Inclusive Innovation**

Leveraging a hub-and-spoke network of innovation centers, this component will help realize the government's vision for developing infrastructure for inclusive innovation. This infrastructure will provide all intended beneficiaries with the state of the art spaces for learning, co-working, knowledge sharing, and global connectivity. The component will finance retrofitting or upgrading of existing government buildings, such as libraries, to establish four Regional Innovation Hubs (RIHs) in Batumi, Rustavi, Kutaisi, and Poti, and around 100 to 150 Community Innovation Centers (CICs) in second-tier towns and villages (out of the 500 planned nationwide by GITA). These innovation centers will serve as the delivery platform for other key activities and programming under this component, including training and skills development—to increase digital literacy, innovation, and enterprise development—and the hosting of innovation “Olympiads” to generate active and productive engagement of community members in the innovation and entrepreneurship process. They will also lead the promotional efforts to raise awareness of the benefits of innovation and to help instill entrepreneurial mindsets.

#### **Component 2: Financing Innovation**

The objective of this component is to facilitate access to early-stage finance for innovators, startup companies, and technology commercialization initiatives. In doing so, the component will help promote development of new businesses, increase startup survival rates, and foster bottom-up innovation. While direct innovation financing support under this component will be limited to matching grants for MSMEs, the targeted training and mentoring provided during the execution of this grant program should help improve the capacity of participants (and their collaborators) to commercialize innovative ideas and secure more mainstream forms of financing (i.e. bank loans and venture financing). This component will also support the identification and implementation of reforms to strengthen the policy and regulatory environment for financing innovation as well as promoting involvement of relevant members of the diaspora.

### Component 3: National Broadband Connectivity

This component will support the expansion of broadband connectivity in Georgia with the specific aim of increasing access to internet services in rural and underserved areas. Of critical importance will be the maximization of broadband coverage to ensure inclusive participation in the innovation economy, and to connect areas that host the proposed innovation centers (supported by Component 1), enabling them to link local communities to global knowledge and information databases and to serve as an integrated national network for entrepreneurial collaboration and the exchange of creative ideas. The proposed activities under this component will address both supply-side (potentially from fiber optic cable infrastructure) and demand-side (financing incentives to link internet providers with customers) needs for increased broadband connectivity.

### Component 4: Project implementation support

This component will aim to ensure efficient and effective implementation of all project components. Support will be provided to GITA to strengthen its capacity and increase human resources available to implement the project.

## IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01			x
Natural Habitats OP/BP 4.04			x
Forests OP/BP 4.36			x
Pest Management OP 4.09		x	
Physical Cultural Resources OP/BP 4.11			x
Indigenous Peoples OP/BP 4.10			x
Involuntary Resettlement OP/BP 4.12		x	
Safety of Dams OP/BP 4.37		x	
Projects on International Waterways OP/BP 7.50		x	
Projects in Disputed Areas OP/BP 7.60		x	

## V. Financing (in USD Million)

Total Project Cost:	40.00	Total Bank Financing:	40.00
Financing Gap:	0.00		
<b>Financing Source</b>		<b>Amount</b>	
Borrower		0.00	
International Bank for Reconstruction and Development		40.00	
Total		40.00	

## VI. Contact point

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