Technical Cooperation (TC) Document

I. Basic Information for TC

Country/Region:	REGIONAL
■ TC Name:	Applied Health Intelligence: Innovation for Implementation and Evaluation of Digital Health in LAC
■ TC Number:	RG-T4471
■ Team Leader/Members:	Nelson, Jennifer A (SCL/SPH) Team Leader; Tejerina, Luis R. (SCL/SPH) Alternate Team Leader; Orefice Pablo Jose (SCL/SPH); Jimenez Mosquera, Javier I. (LEG/SGO); Hidalgo, Nidia (SCL/GDI); Casco, Mario A. (ITE/IPS); Bernal Lara, Pedro Gerardo (SCL/SPH); Delfs Ilieva Isabel (SCL/SPH); Curran, Vanessa Alexandra (SCL/SPH); Bauhoff, Sebastian (SCL/SPH)
■ Taxonomy:	Research and Dissemination
Operation Supported by the TC:	N/A
Date of TC Abstract authorization:	March 27, 2024 - Regional TC proposal submitted through the IDB Ideation platform and was selected through the 2024 Regional Programming and Prioritization Exercise (RPPD).
Beneficiary:	Regional: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, and Uruguay.
Executing Agency and contact name:	Inter-American Development Bank / Jennifer Nelson (SCL/SPH)
Donors providing funding:	OC SDP Window 2 - Social Development(W2E)
IDB Funding Requested:	US\$500,000.00
Local counterpart funding, if any:	US\$0
 Disbursement period (which includes Execution period): 	36 months
Required start date:	July 1, 2024
Types of consultants:	Individuals and Firms
Prepared by Unit:	SCL/SPH-Social Protection & Health
Unit of Disbursement Responsibility:	SCL/SPH-Social Protection & The alth
TC included in Country Strategy (y/n):	N/A
TC included in CPD (y/n):	N/A
Alignment to the Institutional Strategy 2024-2030:	Afro-descendants; Diversity; Economic integration; Gender equality; Indigenous People; Institutional capacity and rule of law; LGBTQ+; Persons with Disabilities; Productivity and innovation; Social inclusion and equality

II. Objectives and Justification of the TC

2.1 **Justification and Importance.** Healthcare in Latin America and the Caribbean (LAC) is overdue for an upgrade, and applied health intelligence is unlocking excellent opportunities to tackle critical health challenges in a cost-effective and scalable way. Applied health intelligence refers to the practical use of advanced data analytics, information technology, and artificial intelligence to improve healthcare outcomes, efficiency, and accessibility. This approach involves collecting, analyzing, and leveraging health data to inform decision-making at various levels of the healthcare system. By leveraging data and technology, healthcare providers can enhance diagnosis and treatment through electronic health records (EHRs), telemedicine, and clinical decision support systems. These digital tools streamline administrative

processes, reduce wait times, and improve coordination among providers, leading to better resource utilization and patient flow. Digital solutions also provide valuable data for evidence-based decision-making, policy development, and population health management. For example, implementing digital health systems can lead to significant efficiency improvements and a reduction in medical errors. In low- and middle-income countries, inefficient healthcare treatment results in 5.7 million to 8.4 million deaths annually, accounting for 15 percent of all deaths. LAC faces increasing healthcare costs, and without effective information systems, these inefficiencies will contribute to higher expenses. However, if healthcare systems in the region become more efficient, it is estimated that the average life expectancy could increase by four years (Pinto et al., 2018). Additionally, low healthcare quality in these countries leads to annual productivity losses of \$1.4 billion to \$1.6 billion, according to the World Health Organization (WHO) (Bagolle et al., 2022). Applied health intelligence enables healthcare systems to become more proactive, personalized, and efficient, ultimately leading to better health outcomes and resource utilization.

- 2.2 Non-Communicable diseases (NCDs) are a priority. NCDs are responsible for 6 of the 10 main causes of death in the LAC region, and their economic cost is substantial. with high health expenditures and foregone earnings due to premature mortality and disability. The economic burden of NCDs is expected to rise substantially in the coming years. The WHO estimates that NCDs will cost the world economy US\$30 trillion between 2011 and 2031, and mental health conditions will account for an additional US\$16.1 trillion over this time frame (Legetic et al., 2016). NCDs also have a significant impact on productivity in the region; in Ecuador, approximately 65% of the population over 19 years old is overweight or obese, which are key risk factors for NCDs, and the cost of this is equivalent to 4.3% of the country's annual gross domestic product (GDP). Looking ahead, the challenge to health systems will be to increase equity, quality, and effective coverage in a fiscally achievable and sustainable way. Key strategies involve strengthening primary care, enhancing service integration, delivering cost-effective preventive and public health services, and advancing interoperable and integrated information systems. These measures aim to improve coverage, while simultaneously reducing transaction costs, inefficiencies, and duplications (Rao et al., 2022; Bernal et al., 2022).
- 2.3 Potential of Digital Solutions addressing NCDs. The use of digital interventions in healthcare can improve the delivery of health services and sustainability, leading to exciting advancements in the treatment and management of NCDs. The Pan American Health Organization (PAHO) has emphasized the importance of certifying digital health interventions, by regulating software as a medical device or through digital therapies that aim to directly deliver evidence-based and clinically evaluated medical interventions to patients for the treatment, management, and prevention of a wide range of diseases and disorders, including NCDs. Rapidly deployable digital health applications have demonstrated effectiveness in reducing the region's biggest burdens of disease. These applications have shown promise in tackling NCDs and mental health and in some countries, can be prescribed by health providers as part of a treatment plan. There are numerous examples of how digital solutions have successfully improved the treatment of non-communicable diseases (NCDs) (Bernal et al., 2022). One such solution is the use of mobile health applications (mHealth), which employ mobile technology to help governments expand health services for NCDs and their risk factors. The WHO has initiated programs like "Be He@lthy, Be Mobile" to use mobile technology in assisting governments to scale up health services for NCDs and their risk factors. Additionally, mobile applications, such as the

"mDiabetes" app for diabetes management, have been created to diagnose and treat NCDs (WHO, 2023). However, few of these solutions have been adopted at scale in LAC, and to scale and sustain these solutions in the public sector through an ecosystem approach, additional work is required to understand the incentives and policies the public sector should put in place in the region.

- Business Process Transformation (BPT) is crucial. For digital health to be truly effective, it must be an integral part of healthcare management and delivery systems. One of the most important pillars of digital health is BPT. BPT is a strategic initiative that involves a thorough analysis, review, and overhaul of existing business processes to enhance operational resilience, boost productivity, and improve overall effectiveness. In the healthcare sector, BPT is crucial for improving patient care, streamlining administrative tasks, and enhancing the overall quality of services. Digital transformation plays a vital role in supporting BPT by leveraging digital technologies to reconfigure workflows, processes, and systems, often involving the integration of artificial intelligence, machine learning, cloud computing, and data analytics. In the LAC region, BPT and digital transformation are gaining importance as healthcare systems face the challenges of modernization and the need to adapt to evolving patient needs and technological advancements (Stoumpos et al., 2023). Healthcare systems in LAC underperform compared to the Organization for Economic Cooperation and Development (OECD) countries and suffer from significant inefficiencies and fragmentation, and BPT can mitigate these deficiencies as it can help eliminate redundancies, integrate care delivery, and improve overall system efficiency (better resource allocation and increased productivity in healthcare delivery) (Herrera et al., 2022). An estimated 70% of preventable deaths in LAC are attributed to poor quality care, rather than lack of access, therefore efforts to improve care process quality is vital. Furthermore, BPT paired with investments in health information systems, disease surveillance, and supply chain management, can better prepare countries for future health emergencies (Savedoff et al., 2022). By integrating applied health intelligence and BPT into healthcare systems, LAC can make substantial strides in improving health outcomes, enhancing efficiency, and promoting sustainability.
- Inclusive Digital Health remains a challenge in practice. Inclusive digital health aims to ensure that people are at the center of the adoption and management of digital health technologies. The digital transformation represents the potential to decrease health disparities, promoting equal access to information and tools for preventive services and healthcare to the most disadvantaged populations. Women, people with disabilities, the LGBTIQ+ community, older adults, rural populations, internally displaced people, and migrants represent groups that need targeted attention in digital health initiatives. Addressing the digital divide among these communities is pivotal to achieving comprehensive health equity. In essence, inclusive digital health isn't just about the technologies themselves but also about making sure these technologies are accessible and effective for everyone, without exception. Achieving this inclusive vision of digital health will require a concerted effort, one that considers the unique challenges faced by these diverse groups, bridging the gaps in access, availability, literacy, engagement, and considerations related to usability to truly leave no one behind in the digital health transformation. In recent years, various international organizations have pointed out the importance of considering inclusion in their digital health agendas (PAHO, 2021). However, translating it into concrete actions remains a challenge that must consider the supply and demand sides of healthcare systems.

- 2.6 The Inter-American Development Bank (IDB)'s Approach. To harness digital tools to curb the growth and impact of NCDs and improve the efficiency, quality, and equity of the sector, the IDB through the Social Protection and Health Division (SCL/SPH) works in four main areas: (i) support quality design, execution and evaluation of digital health transformation agendas and operations; (ii) increase human capital in LAC for digital transformation; (iii) build strategic partnerships within and outside of IDB for digital transformation; and (iv) generate and disseminate knowledge for digital transformation of health services in LAC. This work is a critical area in the IDB's Health Sector Framework Document (GN-2735-12) and is aligned to the broader Social Sector (SCL) Digital Agenda to improve the efficiency of the sector, improve the quality of social services, and reduce inequality through digital services. As of May 2024, SCL/SPH has supported 13 countries1 to create digital agendas and/or national roadmaps for digital health transformation, all of which include the implementation of EHR systems, health information exchange, and scaling up telehealth programs. Critical success factors of the implementation of digital interventions include delivering tailored, tactical support and tools to provide operational support to ensure investments achieve their intended impact (Savedoff et al., 2021). SCL/SPH's approach to successful digital transformation requires balanced investments in six dimensions: (i) governance and management of the digital health transformation; (ii) infrastructure; (iii) infostructure and standards; (iv) health applications and services; (v) people and culture; and (vi) informed health policy and practice (Savedoff et al, 2021, Bagolle et al., 2022). To support governments in their digital transformation process, SCL/SPH has developed a menu of services and technical resources across all six dimensions available on the IDB's Social Digital website that are currently deployed across 20 countries. BPT is a key area in which additional support is required.
- The LAC Digital Health Research Gap. Advancing digital health transformation in 2.7 LAC requires substantial research to address existing gaps and optimize implementation, especially at scale in the public sector. Research is crucial to understand the unique healthcare challenges and advances in the region, as most research is from the United States and Europe in this area. Furthermore, PAHO emphasizes the need for contextualized strategies to enhance telemedicine, electronic health records, and data analytics to improve healthcare outcomes (PAHO, 2021). Current gaps include insufficient integration of digital tools into healthcare systems, limited interoperability of health information systems, and a lack of robust data governance frameworks (PAHO, 2020; PAHO, 2021). Additionally, as countries invest more resources into digital health, operational research is needed to ensure these investments translate into effective and sustainable health outcomes (Savedoff, 2021). Addressing these gaps through targeted research will enable policymakers in the region to develop effective strategies, ensuring that digital health innovations can be equitably and efficiently implemented across LAC.
- 2.8 **Benefits to countries.** Digital transformation of the health sector can improve quality, equity and efficiency when implemented intentionally and holistically (Bagolle et al., 2022). For example, interconnected and interoperable health systems can: (i) reduce health care costs associated with redundant diagnostic testing, unnecessary hospitalizations, and preventable readmissions; (ii) make better use of resources and

Argentina, Bahamas, Bolivia, Colombia, Ecuador, El Salvador, Guyana, Honduras, Jamaica, Paraguay, Peru, Suriname, and Trinidad and Tobago.

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management to know how, when, and where those resources are used: (iii) effectively monitor notifiable diseases, seasonal diseases, communities' disease burden, and other aspects; (iv) aid public health research; and (v) strengthen disaster response (Bagolle et al., 2022). A systematic literature review of 25 studies on Health Information Exchange (HIE) systems found positive outcomes for the quality and cost-effectiveness of health care, while 15 of the HIE studies (60%) demonstrated positive economic effects due to significant savings related to reducing duplicated diagnostics (laboratory tests, medical images) (Bagolle et al., 2022). For example, a study in Canada found that connected health in the outpatient context reduced the duplication of laboratory testing and diagnostic imaging testing, saving the system C\$272.7 million and C\$6.7 million, respectively (Gartner, 2018). Additional research is needed to document the effects of digital health transformation in LAC. However, while 76% of countries in the region have national norms that describe HIE, only 42% have norms relating to which interoperability standards are used, and only one country has achieved HIE at a national scale in practice between public and private sectors (Bagolle et al., 2020). However, these effects require not only adequate solutions, but incorporation of BPT at scale. Additionally, adequate digital infrastructure, lacking for many countries in the health sector, may contribute to reducing income inequality and poverty by enhancing access to jobs, health, and education (Calderon and Serven, 2014; Mooney et al, 2021).

- 2.9 A more resilient region. Standards-based HIE is also important for global public health. The COVID-19 pandemic identified that the current global health architecture is slow to respond to a pandemic and ill-prepared to prevent future public health emergencies. There is a critical window of opportunity to create regional and global foundations for HIE that serve beyond the COVID-19 use case, such as yellow fever vaccination or the International Patient Summary. SCL/SPH is working with PAHO and the WHO to support these efforts through the establishment of the Pan-American Highway for Digital Health.
- 2.10 Bank's support to the health sector and lessons learned. Through the Regional Public Good Technical Cooperation (TC) "Digital Transformation in Health to Mitigate the Effects of COVID-19 in Latin America and the Caribbean" (ATN/OC-18352-RG), SCL/SPH has supported the National Center of Health Information Systems (CENS) in Chile to create the first Regional Health Interoperability Lab in LAC as part of the "LACPASS" project. Currently, 16 Countries are involved in the initiative jointly supported by PAHO.³ Through the TC "Support the Design and Implementation of Key Digital Interventions for COVID-19 in Latin America and the Caribbean" (ATN/JF-18098-RG), SCL/SPH has supported countries to scale-up telehealth solutions and supported the sustainable implementation of Digital Health Interventions for COVID-19 and future public health emergencies. SCL/SPH also supports the LAC digital health network (RACSEL), currently joined by 13 countries.⁴ This TC will also work with sub-regional organizations such as the Executive Secretariat of the Council

² Canada Dollar (C\$).

The LACPASS/Digital Documentation of COVID-19 Certificates (DDCC) Initiative is jointly supporting 16 countries: Argentina, Bahamas, Barbados, Belize, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Panama, Paraguay, Peru, Suriname, and Uruguay.

The RACSEL Network is comprised of representatives from Ministries of Health and Technology from 13 countries: Belize, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Panama, Paraguay, Peru, Suriname, and Uruguay. The Network, started in 2013, supports regional learning among governments for digital health.

of Ministers of Health of Central America and the Dominican Republic (SE-COMISCA) and the Caribbean Public Health Agency (CARPHA) who also support regional digital health transformation. The TC "Support the design, implementation and evaluation of digital health transformation operations" (ATN/OC-19933-RG) also supported the development and implementation of new digital health services such as the Total Cost of Ownership Calculator and Digital Health Procurement toolkits. However, additional technical assistance is required to consolidate these efforts and support countries to adopt market shaping strategies for the scaleup of solutions as well as business process transformation for care processes linked to NCDs and to generate evidence of effectiveness in LAC.

- 2.11 Objective of the TC. The objective of this TC is to support the development and implementation of tools and support services for the design, implementation, and evaluation of country operations with digital components and provide implementation support to the IDB's digital health portfolio. The specific objectives include: 1) support the implementation and evaluation of IDB country operations with digital health investments; 2) provide expert digital health services across the SCL/SPH portfolio related to business process transformation for NCDs and mental health; 3) position the IDB as a credible technical partner for digital health transformation; and 4) generate evidence for policy dialogue. This TC will also support the groundwork for the Pan-American Highway for Digital Health, a new regional initiative backed by the IDB, PAHO and countries in the region participating in LACPASS to enable connected health services in LAC.
- 2.12 **Strategic Alignment.** This TC is consistent with the IDB Group Institutional Strategy: Transformation for Scale and Impact (CA-631) and aligns with the objectives of: (i) reduce poverty and inequality by improving social protection and human capital development in the health sector; and (ii) bolster sustainable regional growth by fostering digital infrastructure and innovative technology-based services and improving regional integration. The TC also aligns with the operational focus areas of: (i) gender equality and inclusion of diverse population groups; (ii) institutional capacity, rule of law, and citizen security; (iii) social protection and human capital development; and (iv) sustainable, resilient, and inclusive infrastructure; and (v) regional integration.
- 2.13 The TC aligns with the Health Sector Framework Document (GN-2735-12) considering that it aims to improve access, quality, and efficiency of health services through digital transformation. This TC also responds to the Gender and Diversity Sector Framework Document (GN-2800-13) by addressing gaps that arise from structural factors promoting accessible and inclusive digital infrastructure and services for health. Additionally, this TC is in line with the cross-cutting area of digital transformation of the ONE Caribbean (Partnering for Caribbean Development Framework) [GN-3201-2]. Finally, this TC is aligned with the OC SDP Window 2 Social Development (W2E) fund through the following Priority Areas: #3 Effective, Efficient and Transparent Institutions and #5 Inclusive Social Development.
- III. Description of activities/components and budget
- 3.1 Component 1: Provide expert digital health services across the SCL/SPH portfolio (USD350,000). The objective of this component is to support the implementation of IDB operations with digital health investments and provide expert digital health services across the SCL/SPH portfolio related to business process transformation for NCDs and mental health. This component will fund consultancies (individuals and firms) and services for the deployment of existing SCL/SPH digital

health services and development of new services according to SCL/SPH's six dimensions (see ¶2.6). It will also finance the development of toolkits for business process transformation through the implementation of digital solutions and interventions to tackle care and administrative processes for NCDs and other illnesses that significantly affect the LAC region in terms of epidemiologic and economic burden.⁵ This component will also support the development of recommendations of policies and market shaping efforts to scale up innovation and interoperability in the health sector and a publication on inclusive digital health services for primary healthcare. This component will also support regional knowledge exchange through virtual and in-person workshops. Main results of this component include: (i) three toolkits for policy makers and implementers related to digital health designed and implemented; and (ii) one regional workshop to share learnings across governments.⁶

- 3.2 Component 2: Generate evidence from digital health innovations supported by IDB operations (USD150,000). The objective of this component is to support evaluation of IDB operations with digital health investments and generate evidence for policy dialogue. This component will fund baseline and follow up assessments and cost-benefit analysis for key digital health investments made through IDB operations. Main results of this component include two technical notes evaluating the effectiveness and/or cost-effectiveness of digital health interventions supported by IDB operations.⁷
- 3.3 **Results.** The main results of this TC include: (i) three toolkits for policy makers and implementers related to digital health designed and implemented; (ii) one regional workshop for digital health; and (iii) two technical notes evaluating the effectiveness and/or cost-effectiveness of digital health interventions. These results contribute to: (i) increasing the number of countries that make sustainable and holistic investments in digital health by approving national digital health agendas, roadmaps and policies to improve governance, cybersecurity, and health information exchange (HIE) in line with international standards; (ii) increased public sector capacity to implement large-scale digital health transformation initiatives; and (iii) increased coverage of quality and efficient digital health services in LAC.
- 3.4 **Total costs.** The total cost of this TC is US\$500,000, funded by the OC SDP Window 2 Social Development (W2E) fund. These resources will finance consultancies (individuals and firms) for 36 months.

Indicative Budget (US\$)

Component	Description	IDB/W2E Total Funding	
Component 1: Provide expert digital health	This component will fund consultancies (individuals and firms) to deploy and design digital health services and toolkits, and travel and logistics for one regional workshop.	350,000	

Recipient countries of SPH digital health services will be selected based on potential impact of services due to existing digital health interventions and disease burden and based on country digital health strategies. Countries and services will be discussed with SPH team leaders and counterparts to determine priority needs not covered by other partners/investments.

⁶ In addition to IDB supported events, SPH will work with IDB LAB, IDB Invest and other partners such as PAHO, RACSEL and the American Business Dialogue (ABD) to share results from this TC.

Interventions selected for evaluation will be based on operational research needs for SPH and member countries as well as research gaps for the region. Countries and evaluations will be discussed with SPH team leaders and counterparts to determine priority.

services across the SCL/SPH portfolio.		
Component 2: Generate evidence from digital health innovations supported by IDB operations.	This component will fund consultancies (individuals and firms) to conduct baseline and follow-up assessments, cost-benefit analysis, and publication of results.	150,000
	Total	500,000

3.5 **Monitoring.** Monitoring of the progress and quality of the activities financed by this TC will be carried out directly by the IDB, through SCL/SPH. The TC team leader will be responsible for supervising and monitoring the appropriate execution of the project, with support from the operations analyst based in the country office.

IV. Executing agency and execution structure

- 4.1 The Bank will be executing this TC given the high level of complexity and technical expertise required to prepare the terms of reference of the studies and assessments involved, as well as to supervise their implementation. SCL/SPH has the capacity and technical expertise required to carry out these processes. Additionally, the hiring of international consultants may be required, for which the IDB hiring process is more agile, reducing the risk of delays in execution. This execution structure will ensure cross-country learning and alignment with the SCL/SPH Digital Health Strategy.
- 4.2 Since 2017, SCL/SPH has been developing and implementing a strategy to develop tools and processes to facilitate and improve the design of digital projects in the health sector, including during the response to the COVID-19 pandemic. These tools have already been implemented in 20 countries and the results have been used for the design of projects and have positioned the Bank as an important technical partner in this area. SCL/SPH actively collaborates with PAHO in the digital agenda and has supported its regional Plan of Action for Strengthening Information Systems for Health 2019-2023 endorsed by member states in October 2019. IDB and PAHO are also jointly implementing the Pan-American Highway for Digital Health Initiative, to ensure connected health for all in the region.
- 4.3 The activities to be executed under this TC have been included in the Procurement Plan and will be executed in accordance with the procurement methods established by the Bank, namely: (i) hiring of individual consultants, as established in AM-650 standards; (ii) contracting of consulting firms for services of an intellectual nature in accordance with the Policy for the Selection and Contracting of Consulting Firms for Bank-executed Operational Work (GN-2765-4) and its associated operational guidelines (OP-1155-4); and (iii) contracting of logistics services and other services other than consulting, in accordance with policy GN-2303-28. The Corporate Procurement Policy (document GN-2303-33), approved by the IDB Board of Executive Directors on November 22, 2023, will come into effect on July 1, 2024. This policy replaces the IDB Corporate Procurement Policy (document GN-2303-28) and the Policy for the Selection and Contracting of Consulting Firms for Bank-executed Operational Work (document GN-2765-4) with a single updated and consolidated policy. Starting from July 1, 2024, all contracts for services provided by firms, logistics services and other services other than consulting will be carried out in accordance with this new Policy GN-2303-33 and its associated guidelines.

- 4.4 All knowledge products derived from this TC will be the Bank's intellectual property. Knowledge products will be published through the Bank's web page and other means accounted for in the indicative budget such as the webpage for digital material of the Social Sector (Social Digital).
- 4.5 All products financed by this TC will include toolkits, guides and manuals that will be usable and replicable for all countries in the region. If activities in one of the participating countries are required, the team will obtain the country's no objection before the start of the activities.

V. Major issues

5.1 Risks identified include potential delays of intervention implementation that could impact evaluation activities and feasibility. These risks would be mitigated through close supervision of digital health operations. Other risks are that the tools and services developed do not generate adequate ownership at country level. To mitigate this risk, emphasis will be put to have team leaders and country counterparts as collaborators of any tool and service that is designed and tested and to make sure that their input is built into the design. At the local level, technical counterparts and partners will be identified to support the implementation and adoption of tools and solutions funded by the TC.

VI. Exceptions to Bank policy

6.1 There are no exceptions to the Bank policy.

VII. Environmental and Social Aspects

7.1 This TC does not intend to finance pre-feasibility or feasibility studies for specific investment projects or environmental and social studies associated with them; therefore, the requirements of the Bank's Environmental and Social Policy Framework (ESPF) do not apply to this TC.

Required Annexes:

Results Matrix 33314.pdf

Terms of Reference_14049.pdf

Procurement Plan 1653.pdf