



AFRICAN DEVELOPMENT FUND

PROJECT : Bamako Digital Complex Support Project

COUNTRY : Mali

APPRAISAL REPORT

Date: July 2011

Appraisal Team	Design Team:	Corbin Michel GUEDEGBE, Chief Education Analyst, OSHD.2 Ali YAHIAOUI, Chief ITC Officer, OITC
	Team Members:	Rokhayatou SARR-SAMB, OSHD, Architect, OSHD.2 Late LAWSON-ZANKLI, Budget Coordinator, SAOS Hamaciré DICKO, Macroeconomist, MLFO Mohamed Aliou DIALLO, Financial Management Officer, MLFO Ramata HANNE-DIALLO, Procurement Officer, MLFO
	Sector Directors :	Agnès SOUCAT, Director, OSHD Gilbert MESHERUBUSA, OITC Director
	Country Director:	Issa KOUSSOUBE, OIC ORWB
	Division Manager:	Boukary SAVADOGO, Division Manager, OSHD.2
Peer Review		B. SARR, Chief Education Specialist, OSHD.0 N. MASSISSOU, Education Economist, OSHD.2 C.M. GOLOGO, Principal Telecommunications Expert, CIMM2 N. NDOUNDO, Energy Expert, ONEC.1 Ali EYEGHE, Principal Socio-economist, OSHD.1 E. FERRERAS-CARRERAS, Gender Expert, OSHD.0

TABLE OF CONTENTS

Table of Contents, Acronyms and Abbreviation, Project Information Sheet, Project Summary, Log-frame, Implementation Schedule.....	i-vii
Currency Equivalents.....	ii
Fiscal Period.....	ii
Weights and Measures	ii
Acronyms and Abbreviations	ii
Bamako Digital Complex Project Implementation Schedule	vii
I Strategic Thrust and Rationale.....	1
1.1 Project Linkages with Country Strategy and Objectives	1
1.2 Rationale for Bank’s Involvement.....	2
1.3 Donor Coordination	3
II Project Description.....	4
2.1 Project Components	4
2.2 Technical Solutions Adopted and Alternatives Explored	6
2.3 Project Type	7
2.4 Project Cost and Financing Arrangements	7
2.5 Project Target Area and Beneficiaries	9
2.6 Participatory Process for Project Identification, Design and Implementation.....	9
2.7 Bank Group Experience and Lessons Reflected in Project Design	10
2.8 Key Performance Indicators	10
III – Project Feasibility	11
3.1 Economic and Financial Performance	11
3.2 Environmental and Social Impact.....	11
IV –Implementation	13
4.1 Implementation Arrangements.....	13
4.2 Monitoring	15
4.3 Governance	16
4.4 Sustainability.....	17
4.5 Risk Management	17
4.6 Knowledge Building	18
V – Legal Framework	18
5.1 Legal Instrument	18
5.2 Conditions Associated with Bank’s Intervention	18
5.3 Compliance with Bank Policies	19
VI – RECOMMENDATION	19
Appendix I: Comparative Socioeconomic Indicators	I
Appendix II: Bank Portfolio in Mali	II
Appendix III: Major Related Projects Financed by the Bank and Mali's Other Development Partners	III
Appendix IV: Project Map.....	IV

Currency Equivalents

Currency Equivalents

May 2011

Unit of Account = CFAF 715.531

Euro = CFAF 655.957

Fiscal Period

1 January - 31 December

Weights and Measures

1 tonne = 2204 pounds (lbs.)

1 kilogramme (kg) = 2.200 lbs.

1 metre (m) = 3.28 feet (ft.)

1 millimetre (mm) = 0.03937 inch (")

1 kilometre (km) = 0.62 mile

1 hectare (ha) = 2.47 acres

Acronyms and Abbreviations

ADB	: African Development Bank
ADF	: African Development Fund
AFD	French Development Agency
CAMES	: African and Malagasy Council for Higher Education
CAP	: <i>Certificat d'Aptitude Professionnel</i> (Certificate of Competence)
GPRSP	: Growth and Poverty Reduction Strategy Paper
ICT	: Information and Communication Technologies
LMD	: <i>Licence-Master-Doctorat</i> (Bachelor, Master and Doctorate)
MDGs	: Millennium Development Goals
MEF	: Ministry of Economy and Finance
MESRS	: Ministry of Higher Education and Research
MPNT	: Ministry of Postal Services and New Technologies
NRI	: Networked Readiness Index
PAES	: Project to Support Higher Education in WAEMU Countries
PISE	: Education Sector Investment Programme
PIU	: Project Implementation Unit
PRODEC	: Ten-year Education Development Programme
RBCSP	: Result-Based Country Strategy Paper
TFP	: Technical and Financial Partners
UA	: Unit of Account
WAEMU	: West African Economic and Monetary Union
WEF/FEM	: World Economic Forum/ <i>Forum Economique Mondial</i>

Project Information Sheet

Client Information

BENEFICIARY : MALI

EXECUTING AGENCY : Implementation Unit under the supervision of the General Secretary,
Ministry of Postal Services and New Technologies

Financing Plan

Source	Amount (UA)	Instrument
ADF	14 000 000	Loan
AFD	7 210 000	Loan
Government	1 890 000	-----
TOTAL COST	23 100 000	

ADF Key Financing Information

Loan Currency: UA	
Type of Interest: N/A	
Interest Rate Margin: N/A	
Commitment Fee: 0.50%	
Service Charge: 0.75%	
Tenor: 40 years	
Grace Period: 10 years	
IRR, NPV (base case): 12%, EUR 1.9 million	

Timeframe – Main Milestone (Expected)

Concept Note Approval	April 2011
Negotiations	July 2011
Project Approval	September 2011
Effectiveness	November 2011
Completion	September 2016
Last Disbursement	September 2017
Last Reimbursement	

Project Summary

Project Overview

The five-year Bamako Digital Complex Support Project due to start in January 2012, will entail the construction and operationalization of a Digital Complex that will be the development pole for Information and Communications Technology (ICT) skills training in Mali. The Bamako Digital Complex will serve the entire country and other countries in the sub-region. At a total cost of UA 23.10 million, the project will be financed by the ADF, the French Development Agency (AFD) and the Government of Mali to the tune of UA 14 million, UA 7.21 million and UA 1.89 million, respectively. At the end of the project, Mali will have an ICT centre of excellence with a tertiary training school, facilities for research, innovation and incubation as well as a business centre.

Needs Assessment

The Bank's intervention will enable Mali create the bases for the full integration of ICTs in socioeconomic development, in line with the country's development priorities. In response to the specialized human resource needs for the next 5 years - estimated by the feasibility study at 500 engineers and 3000 technicians (for initial training), and 1500 technicians (for continuing professional training), the Bamako Digital Complex will help to train a sufficient number of quality skills in ICTs as well as create new skills stemming from the development of ICTs. The Bank's support to the Bamako Digital Complex will also contribute towards implementing the recommendations made by the international community at the 2007 Kigali *Connect Africa Summit*. These aim at supporting the development of a critical mass of ICT skills required for the knowledge economy, especially the establishment of National and Regional Centres of Excellence and National Capacity Building. After the Kigali ICT Centre of Excellence for which the Bank approved financing in 2010, the Bamako Digital Complex is the second one for which the Bank is providing assistance in accordance with the Summit recommendations.

Bank's Value-Added

The priorities of the Bamako Digital Complex are in line with those defined in the Bank's 2008-2012 Medium-Term Strategy (Pillar 4 Higher Education, Science and Technology) and the Information and Communications Technology Operations Strategy. This is a stand-alone project that will help to implement the three pillars of the Strategy for Higher Education, Science and Technology, namely: (i) support to national and regional centres of excellence, (ii) infrastructure building; and (iii) linking the strategy and the productive sectors. The project is jointly prepared by the Human Development Department (OSHD) and the Infrastructure Department (OITC). Both departments will monitor its implementation.

Knowledge Management

The project design process is a contribution to knowledge building. It entails the establishment of an institution combining skills training and research, and revitalization of ICT entrepreneurship through an incubation system and private sector involvement. This model could be adapted and applied to other contexts. Information related to this experience will be made available to the public through the Bank's channels of communication.

Techno Mali: Result-Based Log-Frame

Mali: Bamako Digital Complex Project						
Project Aim: Increase the use of Information and Communication Technologies (ICT) to improve productivity and competitiveness						
OUTCOMES CHAIN		PERFORMANCE INDICATORS			Means of Verification	RISKS AND MITIGATIVE MEASURES
		Indicators (including CSI)	Baseline Case	Target		
IMPACT	Strengthening of role of ICTs in the socioeconomic development of the country and region	1) ICT penetration/user rate in public administration (2) Improvement of Mali's <i>Networked Readiness Index</i> (NRI) ¹ (3) Number of countries in the region whose citizens have registered with the Bamako Digital Complex	(1) 28.2% in 2010 (224 public institutions out of 794) (2) NRI 3.27 in 2010 (5 th in the category of low income countries) (3) 0 in 2011	(1) 90% in 2020 (2) NRI 3.63 in 2020 (among the best two of the category) (3) At least 6 in 2020	MPTN Annual Reports Annual Report of the Global Economic Forum Bamako Digital Complex statistics	
	OUTCOMES	Result 1. Various levels of ICT skills enhanced Result 2. Training and research capacity strengthened Result 3: An adequate framework in place for project management and employment creation in ICTs	Number of ICT engineers trained yearly in Mali by the Bamako Digital Complex Number of institutions providing ICT training, research and innovation in Mali Number of ICT companies derived from the Bamako Digital Complex	0 in 2011 0 in 2011 0 in 2011	30 per year starting from 2017 1 ICT Technopole in 2015 5 companies per year starting from 2016	MPTN Reports MPTN Reports MPTN Reports
OUTPUTS	1.1. Training programmes formulated and implemented per sub-sector 1.2. The trainers' training programmes formulated and implemented	1.1.1 Strategic partnership agreement with a foreign institution 1.1.2 Number of subjects, initial training programmes and continuing education defined and provided by the Techno Centre 1.1.3 Number of student technicians admitted to the Techno Centre annually 1.1.4 Number of engineering students admitted to the Techno Centre per annum 1.1.5 Proportion of girls undergoing training at the Techno Centre 1.1.6 Number of civil servants and job-seekers trained (short continuing education) by the Techno Centre 1.2.1 Proportion of Techno Centre permanent teachers with the required qualification 1.2.2. Proportion of women among the permanent teachers of the Techno Centre	1.1.1. 0 in 2011 1.1.2. 0 in 2011 1.1.3 0 in 2011 1.1.4 0 in 2011 1.1.5 (13%) ² in 2008 1.1.6. 0 in 2011 1.2.1. 0 in 2011 1.2.2. 10.71% in 2011 ³	1.1.1. A general agreement with a strategic partner in 2012 1.1.2 At least 5 subjects in 2013 1.1.3. At least 100 technicians per annum starting from 2016 1.1.4. 30 engineering students starting from 2016 1.1.5 30% starting from 2016 1.1.6 600 civil servants and 150 job-seekers starting from 2016 1.2.2. 25% in 2016	Agreement signed Annual reports of the Digital Complex management	Risk: Insufficient return on the Bamako Digital Complex and difficulties in mobilizing counterpart funds within the projected timeframe Mitigative measure: Estimates of the business plan indicate that the Complex is profitable and will be able to cover its recurrent costs through its revenue after 4 years of operation. The Government has undertaken to cover these costs until the institution's revenue allows it to do so.

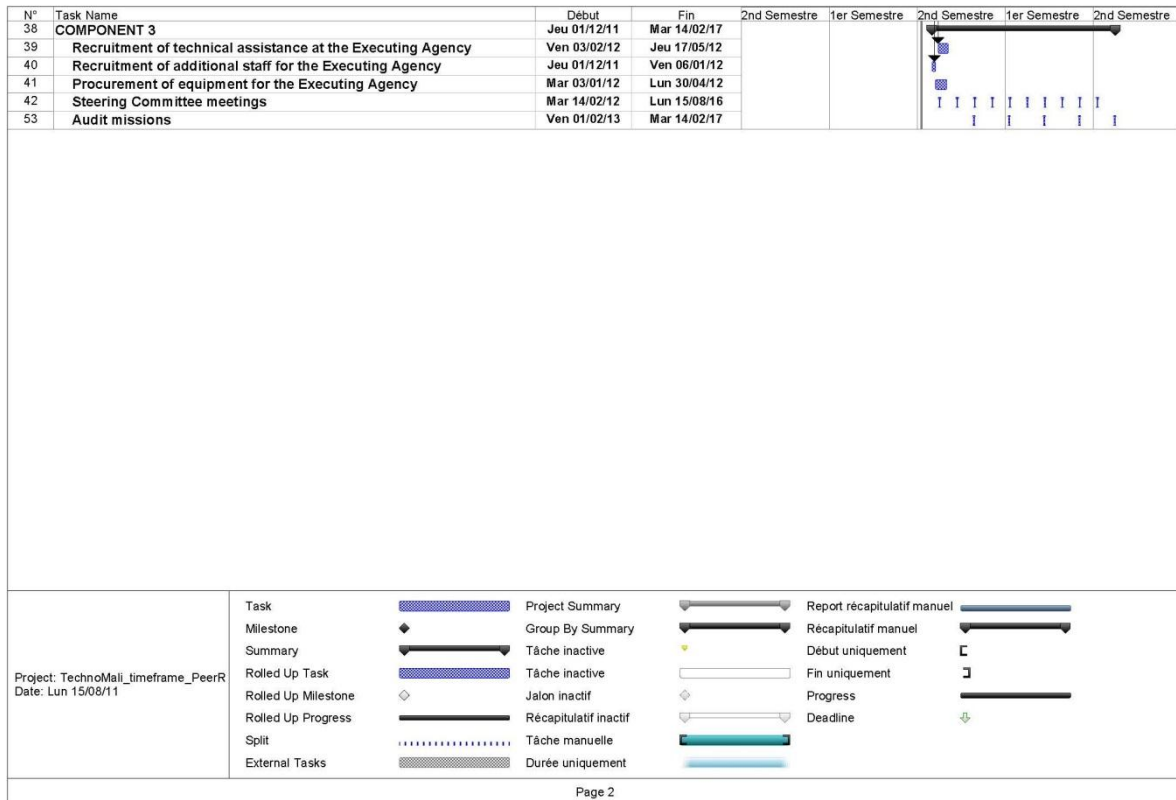
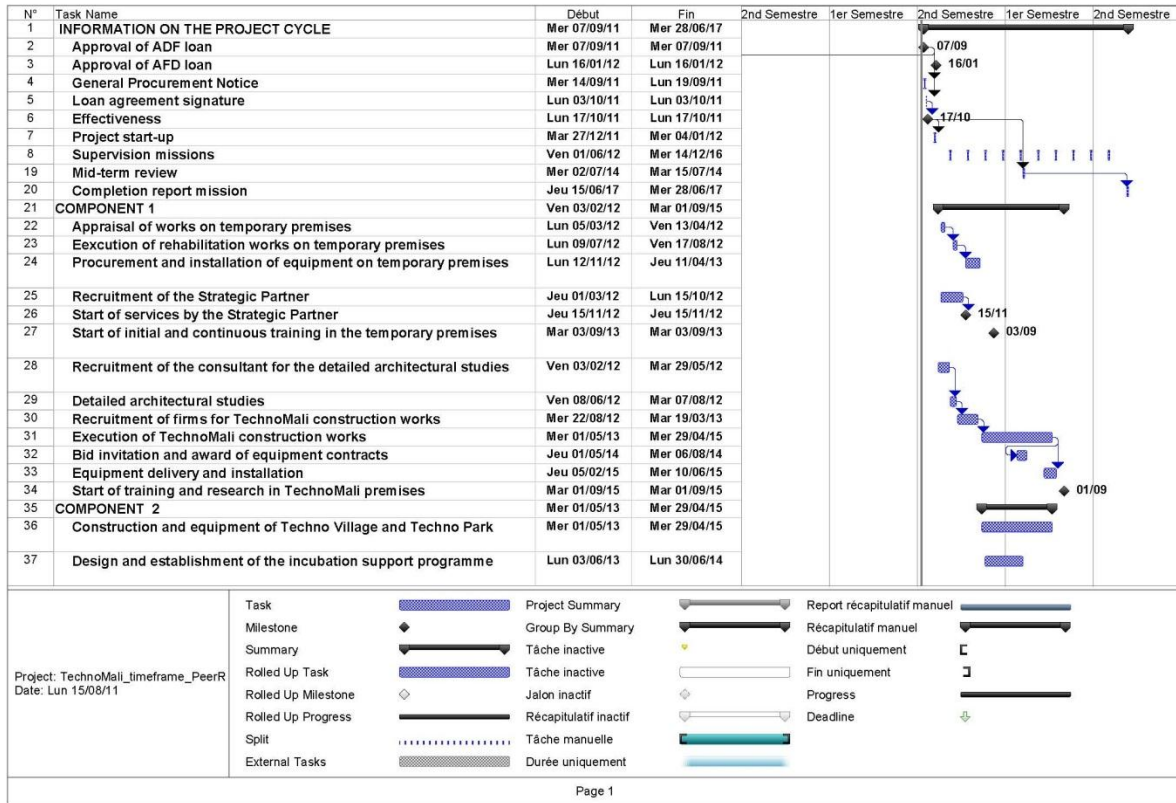
¹ The *Networked Readiness Index* (NRI) is a composite indicator used by the World Economic Forum to rank countries yearly over the last ten years, based on factors such as the IT environment and infrastructure, good practices put in place for the future (policies, etc.), readiness and interest in ICTs by the three main stakeholders of a community (citizens, businesses and the government), the current economic context or actual daily usage.

² At the Faculty of Science and Technology, Bamako University

³ At the Faculty of Science and Technology, Bamako University

	2.1. Infrastructure and equipment provided and operational at the Technopole	2.1.1 Timely completion of administrative and technical buildings and operational on schedule 2.1.2 Intake capacity of the Techno Village 2.1.3 Number of businesses hosted by industrial park in the area of ICTs	2.1.1. 0 in 2011 2.1.2. 0 in 2011 2.1.3. 0 in 2011	2.1.1. 100% of proposed building and equipment completed by 2015 2.1.2. At least 600 persons in 2016 2.1.3. 25 businesses in 2016		<p>Risk: Private sector unwillingness to get involved in Techno Mali</p> <p>Mitigative measure: The private operators met at the project preparation expressed keen interest. Furthermore, the Bamako Digital Complex provides an exceptional physical, intellectual and business environment (presence of a high-level training centre that can meet the changing needs of private actors and through which they can directly influence the training profiles; availability of human, logistic and material resources for research and technological innovations that can generate new marketable products</p>
	3.1. An appropriate framework is created for management, business development and new jobs	3.1.1 Proportion of new businesses stemming from the business incubator initiated by women 3.1.2 Number of jobs created by the Technopole 3.1.3 Proportion of women among employees of the Techno Village, the Industrial Park and in the administration 3.1.4. Number of ICT events organized with the private sector	3.1.1. 0% in 2011 3.1.2. 0 in 2011 3.1.3. 0 in 2011 3.1.4. 0 in 2011	25% in 2016 3.1.2. 77 direct jobs and indirect jobs in 2016 3.1.3. At least 30% in all categories 3.1.4. At least 10 yearly		
	3.2. The project management system in place and operational	3.2.1 Number of pieces of essential equipment procured 3.2.2 Proportion of essential staff in place 3.2.3 Project of physical implementation rate 3.2.4 Project financial implementation rate	3.2.1. 0 in 2012 3.2.2. 0 in 2012 3.2.2. 0 in 2012 3.2.2. 0 in 2012	3.2.1. 100% in 2014 2.1.2. 100% in 2014 2.1.3. 100% in 2016 2.1.4. 100% in 2016		
Activities by Component	Components					Resources by Component (In UA million) ADF Loan: 14.00; AFD Loan: 7.21; Government: 1.89 Component 1: 10.37 Component 2: 11.16 Component 3: 1.57 Total : 23.10
	1. Strengthening initial and continuing training in various ICT areas					
	<ul style="list-style-type: none"> ▪ Construction and equipment of the Techno Centre ▪ Strategic partnership (training, research, training of trainers.) 					
	2. Promoting partnerships between the public sector and the private sector for research and technological innovation in ICT					
	<ul style="list-style-type: none"> ▪ Construction and equipping of the Techno Village ▪ Construction and equipping of the Techno Park ▪ Establishing the Technopole Management ▪ Technical assistance (incubation programme) 					
	3. Project Management					
<ul style="list-style-type: none"> ▪ Setting up of a multi-sector Steering Committee ▪ Appointment of the Executing Agency staff ▪ Procurement of office and computer equipment ▪ Recruitment of administrative and teaching staff 						

Bamako Digital Complex Project Implementation Schedule



**REPORT AND RECOMMENDATION OF MANAGEMENT TO THE BOARD OF DIRECTORS
CONCERNING A PROPOSAL TO GRANT A LOAN TO MALI TO FINANCE
THE BAMAKO DIGITAL COMPLEX PROJECT**

Management hereby submits this report and recommendation on a proposal to grant a loan of UA 14 million to Mali to finance the Bamako Digital Complex Project.

I Strategic Thrust and Rationale

1.1 Project Linkages with Country Strategy and Objectives

1.1.1 The project falls within the context of the Growth and Poverty Reduction Strategy Paper (GPRSP) 2007-2011 and Pillar I of RBCSP 2008-2011 (“improving private sector environment”). One of the main objectives of the GPRSP is to promote strong annual growth of 7% through wealth and employment creation in the growth sectors, including that of Information and Communications Technologies (ICTs). In line with the GPRSP, Pillar I of the RBCSP aims to: (i) promote good governance and render the business environment more conducive to development; and (ii) improve the competitiveness of the private sector in a more direct manner. In line with the GPRSP, the vision of the National ICT Policy and Strategic Plan (2005) is “*to use ICTs to combat poverty, accelerate the economic, social and cultural development of the country, ensure its effective integration into the Information Society, and achieve the Millennium Development Goals.*”

1.1.2 Although the Bank under RBCSP decided to support the Government to improve private sector access to factors of production and financial services as well as promote the services sector, including ICTs, the lack of qualified human resources and absence of an adequate entrepreneurial framework prevent ICTs from fully playing their role in promoting good governance and country competitiveness. The project will put in place a sustainable mechanism that will link high-level skills training and employment creation. This approach is also consistent with the objectives defined in the Ten-Year Education Development Programme (PRODEC) adopted in 2000 and the guidelines defined at the National Forum on Education (November 2008). The general policy adopted by the Forum is “*to promote affordable higher education and quality scientific research involving industry and the private sector*”. Another recommendation was for the systematic use of ICTs to support the development of virtual libraries and distance learning as well as national and sub-regional centres of excellence.

1.1.3 The National ICT Policy and related Strategic Plan also give high priority to national capacity building under the Education and Capacity Building Component and its four objectives: (i) integrate ICTs into formal and non-formal education, school administration and scientific research; (ii) formulate and put in place an initial ICT human resource training scheme; (iii) formulate and implement a continuing ICT human resource training; and (iv) provide employment and ensure competitiveness in ICTs. In this regard, the Government, with the support of development partners, undertook ICT projects aimed at establishing an Intranet for government departments and developing a national optical fibre network. The Bamako Digital Complex Project is in synergy with these activities and will contribute to their sustainability through capacity building actions.

1.2 *Rationale for Bank's Involvement*

1.2.1 The Bank's support to the Bamako Digital Complex also marks its contribution towards implementing the international community's recommendations during the 2007 Kigali *Connect Africa Summit*. The main purpose of the Summit was to mobilize financial, technical and human resources to bridge major gaps in Information and Communications Technology (ICT) infrastructure across the continent, with a view to supporting affordable connectivity by the communities. Summit participants, including Heads of State, the ADB, the ITU, and the AU Commission, adopted several objectives, including "*support[ing] the development of a critical mass of ICT skills required by the knowledge economy, notably through the establishment of a network of ICT Centres of Excellence in each sub-region of Africa, and ICT capacity-building and training centres in each country*". In the spirit of the Summit recommendations, the Bank has backed compatible national initiatives of regional significance. Thus in December 2010, it approved the financing of the Kigali Centre of Excellence - a Rwandan institution, which is also open to East Africans. Similarly, following a request by the Government of Tunisia, feasibility studies on a proposed centre for North Africa are on-going. Although the proposed Bamako Digital Complex will be a Malian national facility, it will also offer a unique opportunity for countries in the West African sub-region where there is already considerable student exchange.

1.2.2 There is an unmet demand for ICT skills at the national level. Based on the National Strategy for ICT Development, the feasibility study on the Bamako Digital Complex estimated Mali's needs for the next five (5) years at 500 engineers and middle-level executives (equivalent to Bachelor's degree or Baccalaureate +3 years) and 1500 technicians from continuing vocational training. It is expected that from 2016 onwards, the Digital Complex will provide on an annual basis 30 engineers, 100 technicians with initial training and 750 with short-term continuing education (salaried workers and employment seekers). There is no institution in the country capable of meeting these needs, which will undoubtedly grow before the Complex starts its training operations.

1.2.3 Although, the Bamako Digital Complex is a Malian institution, it will also contribute to meeting part of the needs of countries in the West African sub-region that do not have a similar facility combining ICT training, innovative project research for the modernization of public administration and economic governance, as well as business incubation involving the private sector. An example is the White Paper "*Préparer l'entrée de l'UEMOA dans la Société de l'Information*"⁴ ("Preparing WAEMU's Entry into the Information Society") in which the Union identifies, among other major constraints, the lack of qualified human resources (telecommunications engineers, systems and network administrators, graphic designers, webmasters, infomediaries, software developers, product designers, multimedia services, etc.). To promote ICTs among all the socioeconomic actors of the sub-region and foster the entry of the countries into the Information Society, one of the strategies adopted by the Union is to support the establishment of high-level regional training schemes. Through its activities, the Bamako Digital Complex will contribute to implementing this strategy for Mali and interested West African countries. The admission of non-Malians to the Complex is facilitated by the fact that there is already a tradition of student mobility in countries in the sub-region. As in similar tertiary institutions in the sub-region, eligible applicants from other countries may be admitted,

⁴ "Préparer l'Entrée de l'UEMOA dans la Société de l'Information: le Livre Blanc de la Commission de l'UEMOA, 2009" ("Preparing WAEMU's Entry into the Information Society: WAEMU Commission White Paper, 2009" (with IDRC support)

depending on available places. However, the Malian authorities and management of the institution will be able to define, together with interested countries, specific modalities for official student exchange programmes.

1.2.4 The Bank's intervention will enable Mali to lay the groundwork for the full integration of ICTs into socioeconomic development. The Bamako Digital Complex will help train a sufficient number of quality ICT skills as well as the creation of new skills stemming from ICT development. These priorities are in line with those defined in the Bank's Medium-Term Strategy 2008-2012, the Information and Communications Technology (ICT) Operations Strategy, the Strategy for Higher Education, Science and Technologies (HEST) related to the Bank's support to the enhancement of tertiary education, ICT development in all sectors and the establishment of science and technology centres of excellence. Through the resulting Digital Complex, the project is in line with the Bank's Strategy for Higher Education, Science and Technology and its three pillars: (i) support to national and regional centres of excellence; (ii) infrastructure building; and (iii) linking HEST and the productive sectors.

1.3 Donor Coordination

1.3.1 In Mali, the education sector (from primary to tertiary, including vocational training) has a Ten-year Education Development Programme (PRODEC) backed by a three-phase Ten-year Education Sector Investment Programme (PISE). The first phase covers the 2001-2005 period, the second 2006-2009, and the third 2010-2012. A Medium-Term Expenditure Framework (MTEF) was formulated under PISE Phase 1 and updated for PISE II and III. The ADB, the AFD, Germany, Netherlands, Canada, UNICEF and the World Bank are providing financing to the Programme. A well-organized Sector Thematic Group exists and constitutes a partnership framework within which the Bank and the other development partners meet to discuss issues related to the general development of education and training. In contrast, there is no properly defined consultative framework for the development partners or an ICT programme. However, as indicated in Appendix III (Major Related Projects), several partners (e.g. Korea, China, European Union) are involved in financing ICT projects managed by the MPNT. The ADB was appointed to lead Mali's Technical and Financial Partners in 2011. Technical Annexes A3 and A4 provide details of education and training financing, and the development partners' contribution. The table below provides an overview of education and training financing for 2011.

Stakeholders– Annual Public Expenditures (2011)		
	Government	Dev. Partners
UA M	[30.5]	[51.30]
%	[30%]	[70%]

Financing Plan 2011	
Sources	%
Sector Budget	
Support	10.60
CIDA	3.96
AFD	7.18
ADB	4.33
National Budget	29.84
IDA	24.64
Japan	4.96
WFP	2.35
Switzerland	0.45
UNESCO	0.66
UNICEF	5.08
USAID	5.95
TOTAL	100.00

Level of Coordination of Development Partners	
Existence of Thematic Working Groups	[Yes]
Existence of SWAPs or integrated sector-wide approaches	[Yes]
Involvement of Bank in coordination	[2011 Leader]
	[

Source: Ministry of Education

II Project Description

2.1 Project Components

2.1.1 The project's development objective is to increase the use of ICTs to improve Mali's productivity and competitiveness. The project will lay the basis for sustained enhancement of the role of ICTs in the country's socioeconomic development. This will entail the establishment of a reference digital pole to: (i) provide training in high-level ICT skills; (ii) generate projects around ICTs; and (iii) propose an enabling development environment for existing and future businesses in the ICT sector.

2.1.2 The five-year project will help to put in place and operationalize the Digital Complex, which will serve as Mali's ICT development pole. The first two years of implementation will be devoted to establishing a strategic partnership on which the training and research programme will be based, detailed architectural designs and the start of the construction and equipping of new infrastructure. The activities of the strategic partner (definition of programmes and training content, student exchange and retraining of national trainers) will kick-start the training in the temporary buildings from the second year of project implementation. The activities of the entire Complex will commence in the new infrastructure at the end of the third year of project implementation. The strategic partnership is expected to continue until the graduation of the first batch of engineers and the consolidation of all components of the Digital Complex's activities, to enable full takeover of the institution by Mali. The Bamako Digital Complex will have the status of a public scientific and technological establishment. Preliminary processes leading to the official creation of the establishment are underway. The Government will forward the relevant evidence to the Bank, i.e. the publication in the Official Gazette of instruments on the

establishment, organization and operation of the Digital Complex. Approval of the instruments will include their adoption by the Council of Ministers and the National Assembly.

2.1.3 A summary of project components and activities is given in the table below:

Table 2.1: Project Components

#	Component	Estimated Cost (UA million)	Description of Components
1	Initial and Continuing Training	11.04	<p>This component aims to put in place a Techno Centre - a specialized tertiary institution that will produce ICT skills, through initial training and continuing education, for Mali and countries in the sub-region. Yearly, the centre will be able to provide 30 engineers, 120 senior technicians with initial training and 750 civil servants and employment seekers with continuing education. The aim of the continuing education will be to provide Malian executives with specialized skills and qualifications through short courses designed for lifetime training. Applicants for the training who will be drawn from the Administration or the private sector will be able to study for certificates, Bachelor's or Master's degrees in ICTs.</p> <p>As indicated in Technical Annex C2 (based on the Feasibility Study), the operating plan of the Techno Centre includes a periodic needs analysis in ICT skills aimed at ascertaining the capacity of the system put in place to respond to the Centre's mission. Activities for this component are as follows:</p> <ul style="list-style-type: none"> ▪ Putting a strategic partner in place ▪ Construction and equipping of the Centre ▪ Content development for the initial and continuing training and research programme ▪ Trainers' training ▪ Teacher and researcher exchange programme ▪ E-learning programme.
2	ICT entrepreneurship, research and innovation	9.89	<p>In addition to the training, the Digital Complex will provide an enabling environment for partnerships between the public and private sectors, researchers and industry, thereby contributing to promoting research, technological innovations (ICT applications) and creation of new businesses and sustainable employment in ICTs. The Complex will provide a link between ICT training, technological innovations and industrialization. To this end, the project entails the construction of infrastructure and procurement of ICT equipment, including the establishment of high-speed broadband based on the optical fibre service already available in the country. The structures mentioned below will be created and provided with adequate staff. They will also receive assistance from the strategic partner:</p> <ul style="list-style-type: none"> ▪ Techno Village: As a structure for ICT watch, discussions and projects, the Techno Village will act as a generator of innovative ICT-based projects for the modernization of public governance and the Malian economy, and those of countries in the sub-region. With a student intake capacity of 600 and equipped with high-tech communication and information processing facilities, it will provide a platform for integrated training, research and industry. The main output will be the provision of infrastructure (buildings and equipment) and management staff ▪ A Techno Park hosting: (a) a Data Centre to serve as the heart of the technical facilities; (b) a Business Incubator to enable the best engineers create their own ICT SMEs at the end of two years of support; and (c) a Business Centre to cater for technologies sector

#	Component	Estimated Cost (UA million)	Description of Components
			<p>enterprises. Under the incubation programme, young graduates admitted to the programme based on their profitable projects will benefit from the logistics of the exceptional digital platform provided by the Techno Park (high-speed connectivity, offices equipped with computers and other ICT equipment, digital resources centre, etc.) and support and supervision by the technical staff in the area of entrepreneurship that would enable them to operationalize their start-up projects</p> <ul style="list-style-type: none"> ▪ Technopole management.
3	Support to Project Management and Monitoring	2.17	<p>The project will support the establishment of an appropriate system for its management under the supervision of the Ministry of Postal Services and New Technologies (MPNT) and cover the costs related to the monitoring of the following activities:</p> <ul style="list-style-type: none"> ▪ International technical assistance to support the executing agency staff at project start-up, with responsibility for skills transfer ▪ Salaries and benefits of members of the executing agency ▪ Operation, equipment and furniture needed for its establishment ▪ Organization of Steering Committee meetings ▪ Auditing of project accounts ▪ Preparation of completion report ▪ Procurement.

2.2 *Technical Solutions Adopted and Alternatives Explored*

2.2.1 The possibility of putting in place specific ICT training programmes through the strengthening of existing institutions such as the Faculty of Science and Technology and the School of Engineers was not adopted since such an approach would not help achieve the goal of the Bamako Digital Complex, which is not limited to training but also aims at creating an environment conducive to ICT entrepreneurship and employment creation. The originality of the approach adopted by the Bank for this operation resides in the fact that, through the structures integrated with the Digital Complex, it will: (i) contribute to putting in place a digital complex of excellence that combines skills improvement, research and innovation; (ii) support business start-ups through incubation; and (iii) create a favourable framework for the direct involvement of the private sector in ICT development. This physical, intellectual and entrepreneurial framework is characterized, firstly, by the presence of high-level training that can meet the changing needs of private actors who will directly influence the training profiles and, secondly, by the availability of human, logistic and material resources for technological research and innovations capable of generating new marketable products.

2.2.2 The table below presents the alternative solution explored and reasons for its rejection

Table 2.2
Alternative Explored and Reasons for Rejection

Alternative	Brief Description	Reason for Rejection
Development of ICT courses at the National School of Engineers	Put in place initial and continuing ICT training programmes at the National School of Engineers (ENI) to meet the country's needs	<ul style="list-style-type: none"> ▪ Contrary to the ENI whose main mission is training, the main mission of the Bamako Digital Complex comprises several components related to training, research and innovation that aim at employment promotion and entrepreneurship in ICTs. ▪ The new approach proposed by the Digital Complex aimed at forging a close link between training and entrepreneurship requires a change in institutional culture that will be difficult to undertake in the context of a classic institution of higher education ▪ The ENI does not have adequate space to host the proposed Digital Complex

2.3 Project Type

This is a stand-alone investment project. The sector budgetary support approach under the Education Programme was not used because the Digital Complex: (i) concerns the specific area of ICTs; (ii) is not included in the on-going Education Programme; and (iii) comprises several activities that are not solely related to education and training. Hence, through the Digital Complex, this project aims to lay the foundations for an ICT development programme in Mali. To this end, sector work will be conducted to support this programme approach under the National ICT Policy and Strategic Plan.

2.4 Project Cost and Financing Arrangements

2.4.1 The total project cost, excluding taxes and customs duties, is estimated at UA 23.10 million (CFAF 16.51 billion at the May 2011 exchange rate of UA 1 = CFAF 715). The cost comprises UA 16.40 million (71%) in foreign exchange and UA 6.70 million (29%) in local currency. It is financed through an ADF loan of UA 14 million (60.6%), an AFD loan (parallel financing) of UA 7.21 million (31.2%) and UA 1.89 million (8.2%) from the Government of Mali. Table 2.7 below presents the financing by expenditure category and sources of financing.

2.4.2. The counterpart contribution amounts to 8.2% of the total project cost. ADF and AFD will finance the remaining 91.8% of the total cost. Pursuant to the provisions of Section 4.2.2 of the Bank's Policy on Expenditures Eligible for Bank Group Financing (revised version of 19 March 2008), ADF is authorized to provide financing that would cover over 90% of the total project cost on a case by case basis, subject to the following conditions, which have been met by Mali:

- i) *Country's commitment to implementing its overall development programme:* Mali is committed to implement the on-going Growth and Poverty Reduction Strategy Paper (GPRSP) 2007-2011;
- ii) *Financing allocated by the country to sectors targeted by the Bank's assistance:* the Government, with the support of its partners, has mobilized the necessary resources to put in place the required telecommunications infrastructure (cf. Appendix III); and
- iii) *Country's budgetary position and debt level:* Mali's overall budgetary position continues to require supplementary external support. It is in this context that it requested the AFD to co-finance this project.

2.4.3 Tables 2.3, 2.4 and 2.5 below present the project costs by component, source of financing and expenditure categories and Table 2.6, the expenditure schedule by component. The costs were based on data from official sources and various other actors of the national ICT market and operators. A 6% provision was included for both price escalation and physical contingencies. The detailed costs are given in Annex B.2.

*Table 2.3
Project Cost by Component (UA Million)*

Component	F.E.	L.C.	Total Cost	% F.E.
1. Initial and Continuing Education	7.38	2.66	10.04	74
2. ICT Entrepreneurship, Research and Innovation	5.99	2.68	8.67	69
3. Project Management	1.41	0.61	2.02	70
Base Cost	14.78	5.94	20.72	71
Physical Contingencies	0.83	0.28	1.10	75
Price Escalation	0.79	0.48	1.28	62
Total Project Cost	16.40	6.70	23.10	71

*Table 2.4
Source of Financing (UA Million)*

Source of Financing	F.E	L.C.	Total Cost	% of Total
ADF	10.51	3.49	14.00	60.6
AFD	5.89	1.31	7.21	31.2
Government	0.00	1.89	1.89	8.2
Total	16.40	6.70	23.10	100.0

*Table 2.5
Project Cost by Expenditure Category (UA Million)*

Expenditure Category	F.E.	L.C.	Total Cost	% F.E.
A. Works	5.89	1.48	7.37	80
B. Goods	2.04	0.37	2.40	85
C. Services	6.53	0.73	7.26	90
D. Operation	0.33	3.08	3.41	10
E. Miscellaneous	-	0.29	0.29	-
Total Base Cost	14.78	5.94	20.72	71
Physical Contingencies	0.83	0.28	1.10	75
Price Escalation	0.79	0.48	1.28	62
Total	16.40	6.70	23.10	71

*Table 2.6
Expenditure Schedule by Component (UA Million)*

Component	2012	2013	2014	2015	2016	Total
1. Initial and Continuing Education	0.91	2.70	3.20	2.48	1.75	11.04
2. ICT Entrepreneurship, Research and Innovation	0.43	3.57	4.21	0.96	0.71	9.89
3. Project Management	0.55	0.39	0.39	0.42	0.42	2.17
Total	1.90	6.65	7.81	3.85	2.89	23.10

Table 2.7
Project Cost by Source of Financing and Expenditure Category (UA Million)

Expenditure Category	ADF		AFD		Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
A. Works	2.79	32.8	5.71	67.2	0.00	-	8.50	36.8
B. Goods	1.07	39.4	1.50	54.9	0.16	5.7	2.72	11.8
C. Services	7.75	100.0	-	-	0.00	-	7.75	33.5
D. Operation	2.09	54.6	-	-	1.74	45.4	3.82	16.6
E. Miscellaneous	0.31	100.0	-	-	-	-	0.31	1.3
Total	14.00	60.6	7.21	31.2	1.89	8.2	23.10	100.0

2.4.4 ADF will partially cover the costs related to works, goods and operation as well as the entire cost of services (including strategic partnership) and scholarships (miscellaneous). AFD will fund, in the form of parallel financing, a portion of the works and equipment costs. The Government will finance part of the costs of goods (vehicles) and operation. Table B.2.6 (Technical Annexes) provides a summary of activities by source of financing.

2.5 Project Target Area and Beneficiaries

The project will be implemented in Mali. The resultant Bamako Digital Complex will serve all Malians meeting the criteria required and nationals of countries in the sub-region. There is already a tradition of student mobility between these countries. The Digital Complex will receive students as well as interns (civil service and private institutions) wishing to acquire ICT skills. The *e-learning* platform to be put in place will provide wide access to training within and outside the country. The stock of skills constituted by the nationals trained at the institution will help gradually improve the performance of the Public Administration and the Private Sectors and generate new employment through business start-ups in the fast-growing ICT sector of the country and the sub-region, as the mobile telephony penetration rate, which grew from 0% in 2000 to 50% in 2010, indicates. In addition to the five new companies that will emerge from the Digital Complex business incubator, with a minimum employment capacity of six persons each, it is estimated that a minimum of 80% of engineers, 50% of technicians and employment seekers trained in the complex will be hired by public and private enterprises.

2.6 Participatory Process for Project Identification, Design and Implementation

2.6.1 The project preparation entailed meetings with various stakeholders, including representatives of various ministerial departments, technical and financial partners, telecommunications service operators, civil society and private sector ICT operators. This consultation with the stakeholders helped to identify national development priorities, expectations and needs expressed by the general public, the strategic objectives of the national policy and elements of a national ICT strategic plan. The technical and financial partners (CIDA, AFD, the World Bank and USAID), relevant ministries (Higher Education, Basic Education, Vocational Training, Youth and Employment, etc.), the private sector (National Employers Council of Mali, Chamber of Commerce and Industry, private ICT training schools, etc.) were consulted. The workshop organized in early May 2011 by the Government and the World Bank on tertiary education reforms provided the Bank's appraisal team with an opportunity to hold discussions with national stakeholders and development partners. The project design and proposed implementation and monitoring arrangements took into account the consultations with the stakeholders.

2.6.2 The operating plan of the Bamako Digital Complex also includes a periodic analysis of needs in ICT skills aimed at ascertaining the capacity of the arrangement put in place to fulfil its mission and thereby facilitate the involvement of external actors in the life of the Institution. Furthermore, during the implementation phase and prior to the start of the activities of the Digital Complex, one of the tasks of the strategic partner will be to design and implement an information and communication strategy intended to make the Institution better known nationally and in countries of the sub-region, as well as arouse the interest of private actors, countries and regional institutions. The information and communication activities should include aspects related to awareness raising among girls and women with regard to ICT skills.

2.7 Bank Group Experience and Lessons Reflected in Project Design

2.7.1 Lessons learned from the implementation of projects financed by the Bank in Mali and elsewhere as well as experiences from operations financed by other donors were reflected in the project design. To date, the Bank has financed six operations in Mali's education and training sector (five projects and one study). The only on-going operation is the Project to Support the Ten-year Education Development Programme (PRODEC), commonly called Education IV. The implementation periods of all the completed operations were longer than the original schedules due to delay in fulfilling the conditions precedent to effectiveness and first disbursement, lack of capacity of the management teams and inadequate coordination between procurement of equipment and construction of infrastructure. In view of past experiences, soon after the signing of the loan agreement by the parties, technical assistance will be provided to the project management team at the MPNT General Secretariat. The number of conditions precedent will be limited and the integrated planning of the building construction works and equipment procurement undertaken. The Bank's Field Office (MLFO) will monitor on a daily basis the start and progress of the project to avoid implementation delays.

2.7.2 Furthermore, the Bank has acquired experience in the design and implementation of ICT capacity building operations (ICT basic infrastructure, training and applications), which constitutes an asset for this operation. Similar operations include the recently completed African Virtual University Support Project approved in 2004 and two on-going projects, namely the Southern African Distance Learning Capacity Building Project (SADC) approved in 2006, and the Project to Support the Kigali Regional ICT Centre approved in 2010. All these projects comprise infrastructure improvement components as well as the development and deployment of applications for various sectors with special emphasis on distance learning and training. A key lesson from the Kigali Project reflected in this operation is the need for a strategic partner.

2.8 Key Performance Indicators

2.8.1 The monitoring system as described in paragraph 4.2.2 will be based on the SMART⁵ performance indicators mentioned below and contained in the logical framework:

Impact indicators: (i) ICT penetration/user rate in public administration; and (ii) improvement in Mali's *Networked Readiness Index (NRI)* ranking. The outcomes will be achieved gradually in the course of project implementation and the impact will be increasingly perceptible as the activities of the Bamako Digital Complex advance.

⁵ SMART: *Specific, Measurable, Attainable, Realistic, Time Bound*

Outcome indicators: (i) number of ICT engineers trained in Mali annually by the Bamako Digital Complex; (ii) number of institutions in the country combining ICT training, research and innovation; and (iii) number of ICT businesses stemming from the Techno-Mali business incubator.

Output indicators: the main indicators to be monitored are the following: (i) strategic partnership with a foreign institution; (ii) number of initial and continuing education programmes and subjects defined and taught at the Techno Centre; (iii) number of engineering students admitted to the Techno Centre; (iv) proportion of girls undergoing training at the Techno Centre; (v) number of civil servants and employment seekers trained (short term continuing education) by the Techno Centre; (vi) proportion of women among the Techno Centre permanent teachers; and (vii) number of businesses hosted by the Techno Park in the area of ICTs.

III. Project Feasibility

3.1 Economic and Financial Performance

3.1.1 The table below summarizes the financial sustainability of the indicators. The detailed analysis is given in Technical Annex B.7.

**Table 3.1
Main Economic and Financial Data**

NPV (base case)	EUR 1.9 million
IRR (base case)	12%

3.1.2 A summary of the calculations leading to these results is given in Annex B7. The expenditure and income projections of the Digital Complex were made over a 20-year period, based on the feasibility study data. The costs include the initial investment, operating costs and teaching expenditure. The operating budget assumptions were based on a three-year operating period for the Digital Complex subsequent to the initial investments. Revenue consists of: (i) training fees paid by Techno Centre students; (ii) revenue from rental of Techno Village resources; and (iii) revenue from the Techno Park Business Centre.

3.2 Environmental and Social Impact

3.2.1 **Environment.** In line with the Bank’s environmental guidelines, the Bamako Digital Complex has been classified as Category 2 since it will not entail any notable adverse effects on the environment. The Project Environmental and Social Management Plan (ESMP) has been prepared and the summary will be published on the Bank’s website one month prior to approval by the Board in accordance with the Bank’s Environmental and Social Policy. The ESMP will be implemented in a manner that ensures the mainstreaming of environmental and social dimensions in project execution and monitoring/evaluation. The cost of this activity is included in the project cost. Given Mali’s favourable geographic location, optimal use will be made of renewable energy sources in project implementation. A summary of the ESMP is given in Technical Annex B.8. Monitoring of the ESMP will be part of the overall project monitoring process.

3.2.2. **Climate Change.** The national capacity building aspect of the project should have an impact on the general behaviour of people, including awareness about the harmful effects on the environment of vehicles and the media, particularly radio and television. Project construction activities are not likely to affect the quantity of greenhouse gases emitted by Mali. According to official reports, the level of per capita CO₂ emission in the country is among the lowest in the world. Increase in CO₂ emission is normally slow and project implementation will not have a significant impact in this area.

3.2.3 **Gender.** The Bamako Digital Complex will provide an enabling environment for the enhancement of gender equality through new ICT skills and responsibilities in managing the Technopole. Indeed, the GPRSP 2007-2011 stresses that: (i) women are under-represented in the public and formal private sector; (ii) they occupy subordinate positions and suffer discriminatory income discrepancies; and (iii) despite the progress made in the micro-finance sector through savings and credit organizations, access by women to financial service is still limited, thereby hampering effective female entrepreneurship. The Bank's case study on gender and employment in Mali⁶ indicates that the likelihood of obtaining better-paid employment is higher for men than for women, irrespective of the potentially influential factors such as standard of education, age, matrimonial status, structural/economic factors or region/place of residence. This is partly due to the small proportion of women with general and vocational qualification as well as inequality-related cultural and social conditioning. Furthermore, it is noted that although the proportion of women in the services sector in Bamako is equal to that of men, women represent only 4% in the industry sector.

3.2.4 In this regard, ICT skills constitute new opportunities for women to enter the job market as autonomous competitors. It is also worth noting that although girls accounted for 27.59% of the student population of the University of Bamako in 2007, they only represented 13% of enrolment in the Faculty of Science and Technology (the basic admission profiles in this Faculty are similar to those required for engineering courses). Women account for 10.71% of the number of the teachers in this Faculty. The project will contribute to increasing the number of women who can gain access to sustainable employment. To this end: (i) at least 30% of applicants for various courses on offer at the Digital Complex will be women; (ii) a minimum of 25% of jobs at the Complex (out of a total of 77 positions comprising directors, professionals, secretaries and assistants to be filled through recruitment) will also go to women; and (iii) women will make up 30% of the teaching staff. The country's authorities and the strategic partner should endeavour to attract women applicants from the public and private sector. To enable all the applicants to have equal access to the resources needed for their training, a financial support scheme will be put in place to help them acquire laptops. Moreover, the five best applicants admitted to engineering and technical programmes will receive scholarships, two of which will be reserved for deserving women applicants.

3.2.5. **Social.** The Bamako Digital Complex Project will contribute to improving the quality of ICT training in the country and sub-region, and result in the creation of a favourable environment for ICT start-ups as well as dissemination of good ICT practices and culture in the country and sub-region. In an equally direct way, the ICT skills training will create significant opportunities for many job seekers in search of retraining or promotion, including women and girls, thus facilitating their access to skilled employment. Indirectly, the innovative business start-up projects will generate a number of additional jobs as part of a virtuous spiral system. Lastly, the

⁶ Gender in Employment, A Case Study of Mali (ADB, Chief Economist Complex, Vol. 1 No. 1, 12 April 2011)

strategic modernization and economic support projects will necessarily have a positive impact on employment in Mali and the sub-region.

3.2.6 The anticipated medium-term progress once the Bamako Digital Complex Project becomes fully operational are: (i) creation of 77 direct jobs and 250 indirect jobs; (ii) annual admission to initial training of 30 engineering students and 120 senior technicians; (iii) continuing education of 600 civil servants and 150 job seekers yearly; (iv) 5 business start-ups by young entrepreneurs yearly; (v) hosting of 25 ICT businesses; and (vi) organization of 10 ICT events yearly.

3.2.7 **Forced Resettlement.** The project will not entail any population displacement.

IV. Implementation

4.1 Implementation Arrangements

Executing Agency

4.1.1 Project implementation management will be integrated with the structures of the supervising Ministry, albeit kept distinct from the administration of the Digital Complex that will be established during the project implementation phase. A team will be put in place under the supervision of the General Secretariat of the Ministry. Appointed by the Minister and made up of staff of the Ministry and other institutions, the team will comprise the following: a director, a civil engineer, a training and programmes specialist, a procurement specialist, a monitoring/evaluation specialist and a financial management specialist. The selection of the successful applicants based on precise terms of reference will be subject to approval by the Bank. The ministerial team will be supported with technical assistance in the strategic partner's fields of intervention and serve as an interface with the latter. The terms of reference of the technical assistance are contained in Technical Annexes C5. A consulting firm will be recruited for the architectural designs and works supervision.

4.1.2 The strategic partner selected will help to transfer knowledge and provide quality training to the students, job seekers and working civil servants. This will be a foreign academic institution with the necessary skills and proven experience in ICT training and research. The feasibility team indicated the availability of institutions that could play this role. The recruitment of the strategic partner has been scheduled in a manner ensuring that the technical partnership is effective by end 2012. This will enable the strategic partner to prepare the opening of the Institution in September 2013 in temporary premises. Under the administrative and technical supervision of the project executing agency at the Ministry of Postal Services and New Technologies, the strategic partner will be responsible for designing and implementing the training and research programmes based on universal academic standards and the establishment of the incubation programme. It will formulate and implement an initial and continuing trainers' training programme to build a critical mass of permanent teachers and researchers for the Techno Centre. To promote a culture of equity, it is expected that at least three (3) teachers out of 10 will be women. The project has earmarked resources to finance services related to the strategic partnership. The terms of reference of the strategic partner are given in Technical Annex C5.

4.1.3 Since the Techno Centre is an institution of higher learning under the supervision of MPNT, it will meet the criteria defined by the Ministry for Higher Education and Research (MESRS) and follow the CAMES⁷ standards with regard to the accreditation of the curricula (notably the LMD⁸ system), degrees and qualification of the teachers. With the support of the World Bank, MESRS is currently preparing a higher education reform project; the curriculum of the Bamako Digital Complex will be consistent with the modalities to be defined. A few examples in Tunisia and France indicate that there are institutions that provide tertiary level training in ICTs under the supervision of ministries other than the ministry of higher education⁹. Through its interactions with the country's other higher education institutions, this Digital Complex will contribute to enhancing the quality of tertiary education in Mali. For example, the teachers and students of the Faculty of Science and Technology (FAST) and the School of Engineers (ENI) will benefit from the unique environment provided by the Bamako Digital Complex to establish a link between training and entrepreneurship. The definition of links between these institutions will enable FAST and ENI students to pursue specific courses at the Bamako Digital Complex. It is worth noting that the bases for cooperation with ENI already exist since the latter has provided the buildings to enable Techno Mali to start its training activities before the completion of its own buildings.

4.1.4 For the Bamako Digital Complex, a *Multisector Steering Committee* will be put in place and chaired by the supervising minister. The Committee will be made up of representatives from the ICT sector, the private sector, Ministries of Industry, Employment, Women's Enhancement (which will be the gender focal point), Higher Education and Scientific Research, Basic Education and Economy and Finance. The Committee will be responsible for coordinating the entire project implementation.

Procurement Arrangements

4.1.5 The project will follow Bank rules and procedures for the procurement of goods and works, and Bank rules and procedures for the use of consultants. A Bank review of the national procurement system conducted in 2010, the findings of which were submitted to the Government for approval, indicates that overall, the local competitive bidding (LCB) system meets the relevant standards set by international good practices. However, for the purpose of using national procedures in implementing this ADB project, a few adjustments will be made to ensure that the national procedures recommended by the Malian legal and regulatory procedures are in line with Bank's procurement requirements, notably in respect of the participation of public enterprises, the form of contract pooling, conditions for giving preferences and conditions for price review. **Based on this and subject to the authorities making the necessary adjustments, it is recommended that Bank rules and procedures be followed when implementing this project.**

4.1.6 Modalities for awarding various contracts are detailed in Annex B.5. A procurement plan will be prepared and discussed during the negotiations. The Ministry in charge of New Technologies will be responsible for procurement. An assessment of its capacity revealed a need to strengthen its ability to conduct procurement activities. A procurement expert will be recruited

⁷ CAMES: Conseil Africain et Malgache pour l'Enseignement Supérieur (African and Malagasy Council for Higher Education)

⁸ LMD: Bachelor's ("Licence") - Masters - Doctorate

⁹ Tunisia: Higher School of Communications of Tunis (Sup'Com) - (Ministry of Industry and Technology & Ministry of Higher Education and Research)

France: (i) PARISTECH TELECOM; (ii) *Telecom Bretagne*; (iii) *Telecom Sud Paris* (Ministry of Economy, Finance and Industry)

for the Project Executing Agency. To this end, some procurement activities will be conducted in accordance with the ex-post review procedure under conditions described in Annex B5.

4.1.7 Disbursement arrangements. Disbursements will be governed by the Bank's rules of procedure, based on the following methods detailed in the Bank Group's disbursement manual: (i) special account method; (ii) direct payments method; (iii) reimbursement of the Borrower's expenses; and (iv) payments by letters of credit. Disbursements concerning procurement for the installation of equipment, as well as other consultancy services, notably auditing of accounts, training, etc., will be made by the Bank using the direct payment method. Furthermore, consistent with the Bank's guidelines, the Borrower will open a special account with a bank acceptable to ADF to receive the revolving funds as well as a second special account bearing the project name to receive the counterpart contribution. These accounts will operate under the double signature of the Head of the Structure and its accountant. The banks at which the special accounts will be opened must systematically furnish a comfort letter to ADF.

Financial Management and Audit

4.1.8 The General Secretariat of the Ministry of Postal Services and New Technologies will have oversight of the project and ensure its technical monitoring. The Ministry is a recent creation. As a result, the various departments are not yet in place, much less the computerized management systems. Hence, the strategy adopted is to use the project as a means of sustainably strengthening the Ministry's sector coordination as well as its technical, administrative and financial management capacity.

4.1.9 An administrative, accounting and financial procedures manual will be prepared before project start-up. The project will also be provided with a suitable computerized management system for project management and in harmony with the procedures manual (possibility of producing a Supply and Use Table, budget execution monitoring, expenditure accounting by component and donor resources). The project accounting will be separate from that of the supervising entity to ensure distinct financial statements.

4.1.10 An independent external firm will undertake the external auditing of the accounts. The audit reports will be sent to the Bank annually, within 6 months following the end of the financial year audited. Other government entities (e.g. the Office of the Auditor General, General Public Services Controller or the Finance Inspectorate) may audit the project at any time they may deem fit.

4.2 Monitoring

4.2.1 The executing agency will be responsible for project monitoring/evaluation. All structures involved in project implementation will prepare and forward their quarterly and annual activity reports to the executing agency. The executing agency will prepare a synthesis of the reports to be forwarded to the Bank. All reports will follow the Bank's formats. At the end of the project, the executing agency will, with the support of a consultant, prepare and submit a completion report to the Bank. The reports will be established quarterly and annually in line with the applicable Bank guidelines, and submitted to MPNT and the Bank. Gender disaggregated data will be provided in the reports (number of male/female teachers, pupils, etc.). Complementary databases will be collected, where necessary, in accordance with the

performance indicators adopted by the project. ESMP monitoring will be included in the quarterly and annual implementation reports.

4.2.2 The design of the monitoring/evaluation system will be based on SMART¹⁰ outcome and output indicators defined in the log-frame mentioned in paragraph 2.8. The necessary resources have been included in the ADF resources and the counterpart contribution. Furthermore, the Bank will carry out a minimum of two (2) supervision missions yearly. The Bank’s Field Office (MLFO) will participate in all monitoring missions. It will also closely monitor project execution. At the end of the 24-month implementation phase, the project will undergo a mid-term review. The Borrower and the Bank will jointly prepare the project completion report. The implementation schedule for the main activities is summarized in the table below:

Table 4.2
Implementation Schedule for the Key Monitoring Activities

Period	Benchmark	Monitoring Process/Feedback
Nov. 2011	Project launched with implementation staff	The launch mission organized with a multidisciplinary team
May 2012	Recruitment of support consulting firm (technical assistance)	Technical assistance in place
Aug. 2012	Architectural designs completed	Report submitted and validated
Dec. 2012	Strategic partner in place and operational	Permanent team in place
May 2013	Start of Bamako Digital Complex construction works.	Visit to construction site
Sept. 2013	Start of training in temporary premises	First group of engineering and technical students admitted
June 2014	Mid-term review	Mission organized by multidisciplinary team
Sept. 2014	First group of local teachers in place	Teachers recruited and retrained by strategic partner
June 2015	Works completed and premises equipped	Positive temporary handover
Sept. 2015	Start of activities in new buildings of the Bamako Digital Complex	The entire staff is appointed and 3 components of the Digital Complex are operational in the new premises
April 2017	Completion mission	

4.3 Governance

The findings of the *Public Expenditure and Financial Accountability (PEFA)* 2010 report indicate that overall, Mali’s public finance management system is satisfactory. However, it is worth noting that a major weakness persists in the area of external scrutiny and audit. Furthermore, specific previous developments call for some precautionary measures based on the Bank’s own systems, as mentioned above. Thus, the financial management risk is high and requires the following mitigative measures: (i) preparation and implementation of administrative, financial and accounting procedures that set out the modalities for administrative management, including the definition, description and separation of tasks between various project actors; (ii) procurement of accounting software, its configuration and user training; (iii) periodic financial reports submitted to the Bank; (iv) regular financial supervision by the MLFO Financial Management Specialist; and (v) conducting of regular project audits.

¹⁰ SMART: Specific, Measurable, Attainable, Realistic, Time Bound

4.4 Sustainability

4.4.1 The analyses carried out in the feasibility study indicate that the Bamako Digital Complex is profitable. The net present value (NPV) is estimated at EUR 1.9 million and the internal rate of return (IRR) at 12%. Revenue comprises fees for initial training (between EUR 1 350 for the first year of BTS and EUR 3 000 for the fifth year of the engineering cycle), continuing education (short courses), Government contributions and fees for services provided to the national and international private sector. The training fees are equivalent to the average paid by Malian students to local private institutions that provide advanced vocational training, including ICTs. Details of the economic and financial analysis are given in Annex B.7. The recruitment of staff on a competitive basis (invitation for candidature) will ensure that the best skills are obtained for the administrative and academic running of the Digital Complex.

4.4.2 Recurrent costs at project completion will relate to: (i) the operating cost of the Complex, including salaries (UA 0.5 million); and (ii) maintenance cost of the buildings and equipment, and possible replacements estimated at 1% of the construction and equipment costs, (UA 0.12 million per year). Resources generated by the Techno Centre student registration and course fees (52%), services provided by the Techno Village and Techno Park to users and operators (25%) as well as contributions from the Government and external subsidies (23%) will be sufficient to cover the recurrent costs starting from the fourth year of running the Digital Complex. The presence of a Resource and Technical Services Centre in the Complex, charged with coordinating buildings and technical equipment maintenance and monitoring operations, will guarantee the sustainability of investments. Although the Centre will have qualified staff, it will also resort to external expertise when necessary. The inclusion of basic maintenance in the ICT initial and continuing education will help to create an enabling environment for sustainability of the equipment. The Government of Mali is also committed to covering the operating expenses until the resources generated are sufficient to do so.

4.5 Risk Management

The main risks presented in the table below are indicated in the result-based log-frame matrix.

*Table 4.5
Risks and Mitigative Measures*

Risks	Level	Mitigative Measures
Limited national management capacity for an ICT project of such a scale	Moderate	Support during the launch phase by a team of specialized consultants capable of executing the terms of reference defined in the feasibility study
Insufficient teachers/researchers and other qualified specialists to ensure sustainable quality training	Moderate	A strategic partner will be recruited (foreign academic institution with the necessary skills and proven experience in ICT training and research) to take charge of the design and implementation of training and research programmes, recruitment and retraining of national teachers, including incubation. The partner will support the Bamako Digital Complex for a few years. Incentives will be provided, for example to enable the teachers to reconcile their teaching and research duties with external activities relating to their areas of specialization
Lack of profitability of the Bamako Digital Complex and difficulties in mobilizing counterpart resources within the set timeframe	Low	The business plan estimates indicate that the Bamako Digital Complex is profitable and, thanks to its revenue, will be able to cover the recurrent costs after 4 years of operation. The Government has undertaken to cover the recurrent costs until the Institution is capable of generating sufficient revenue to do so.
Reticence by the private sector to be involved in the Bamako Digital Complex	Low	The private operators met with during the project preparation expressed keen interest in the project. Furthermore, the Digital Complex will provide an exceptional physical, intellectual and business framework (presence of a high level training centre that can meet the changing needs of the private sector and is able to directly influence the training profiles; availability of human logistic and material resources for research and technological innovations capable of generating new marketable products

4.6 Knowledge Building

The project design is a major contribution to knowledge building as regards the establishment of an institution combining ICT training, research and business development, through an incubation system and private sector involvement. This model will be adapted and applied to other contexts. Information related to this experience will be available to the public through the Bank's communication channels.

V. Legal Framework

5.1 Legal Instrument

The project will be financed with an ADF (Fund) loan of UA 14 million, an AFD loan of UA 7.21 million and counterpart funds from the Republic of Mali (Borrower) amounting to UA 1.89 million.

5.2 Conditions Associated with Bank's Intervention

5.2.1 **Conditions precedent to effectiveness.** Effectiveness of the Loan Agreement shall be subject to fulfilment by the Borrower of the conditions set forth in Section 12.01 of the General Conditions Applicable to Loan Agreements.

5.2.2 **Conditions precedent to first disbursement of loan resources.** Apart from effectiveness of the Loan Agreement as set forth in Section 4.01 above, disbursement of the loan resources will be subject to the Borrower's fulfilment of the following special conditions to the Fund's satisfaction:

- (a) Evidence of officially establishing the Bamako Digital Complex as a public scientific and technological establishment (§ 2.1.2);
- (b) Evidence of opening: (i) a special account in local currency to receive Fund resources; and (ii) and an account to receive counterpart resources in a bank acceptable to the Fund (§ 4.1.7);
- (c) Evidence of appointing the staff (a Director, a civil engineering specialist, a training specialist, a procurement specialist, a monitoring/evaluation specialist and a financial management specialist) in charge of managing the project at MPNT (§ 4.1.1); and
- (d) Evidence of setting up the Multisector Steering Committee responsible for coordinating project implementation and appointing its members, including a representative from each of the following areas: (i) ICTs; (ii) private sector; and (iii) Ministries of (1) Industry; (2) Employment; (3) Women's Enhancement; (4) Higher Education and Scientific Research; (5) Basic Education; and (6) Economy and Finance (§ 4.1.4).

5.2.3 **Other conditions.** To avert possible suspension of disbursements during project implementation, the Borrower undertakes to:

- (a) Provide the Fund, latest six (6) months after the effectiveness of this Agreement, with evidence of obtaining the AFD financing; and
- (b) Prepare and present to the Fund for non-objection no later than six (6) months following the date of first disbursement, procedures manual detailing the project implementation modalities, including the respective roles of various donors (§ 4.1.9).

5.2.4 **Commitments.** Additionally, the Borrower undertakes to implement the Environmental and Social Management Plan (ESMP) and communicate in a format acceptable to the Fund quarterly reports on the status of implementation of the Plan (§ 3.2.1; § 4.2.1).

5.3 Compliance with Bank Policies

With regard to education and skills development focusing on science and technology, and establishment of centres of excellence, the project is consistent with the applicable policies of the Bank, notably: (i) the 2008-2012 Medium Term Strategy (2008) and its Mid-Term Review (2011); (ii) the Information and Communications Strategy (2008); and (iii) the Strategy for Higher Education, Science and Technology (2008).

VI. RECOMMENDATION

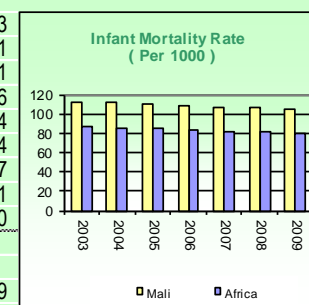
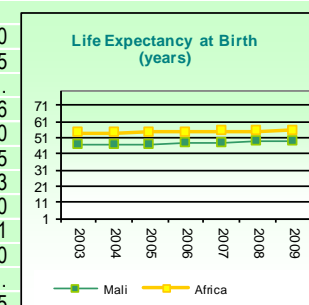
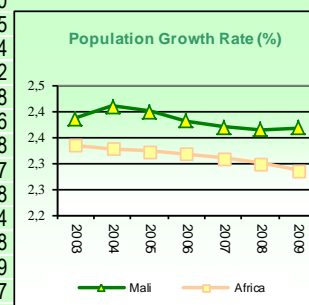
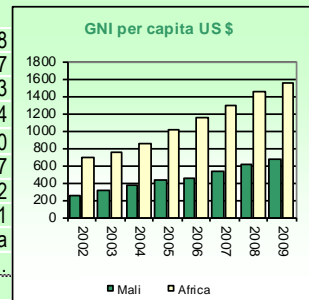
Management recommends that the Board of Directors approve a UA 14 million loan to the Government of Mali for the purpose and subject to the fulfilment of conditions stipulated in this report.

MALI

Comparative Socioeconomic Indicators

Appendix I

	Year	Mali	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		1 240	30 323	80 976	54 658
Total Population (millions)	2010	13,3	1 031,5	5 659	1 117
Urban Population (% of Total)	2010	33,3	39,9	45,1	77,3
Population Density (per Km ²)	2010	10,7	34,0	69,9	20,4
GNI per Capita (US \$)	2009	680	1 525	2 968	37 990
Labor Force Participation - Total (%)	2010	29,0	40,1	61,8	60,7
Labor Force Participation - Female (%)	2010	37,6	41,0	49,1	52,2
Gender -Related Development Index Value	2007	0,353	0,433	0,694	0,911
Human Develop. Index (Rank among 169 countries)	2010	160	n.a	n.a	n.a
Popul. Living Below \$ 1 a Day (% of Population)	2006	51,4	42,3	25,2	...
Demographic Indicators					
Population Growth Rate - Total (%)	2010	2,4	2,3	1,3	0,6
Population Growth Rate - Urban (%)	2010	4,2	3,4	2,4	1,0
Population < 15 years (%)	2010	44,1	40,3	29,0	17,5
Population >= 65 years (%)	2010	2,4	3,8	6,0	15,4
Dependency Ratio (%)	2010	86,5	77,6	55,4	49,2
Sex Ratio (per 100 female)	2010	97,6	99,5	93,5	94,8
Female Population 15-49 years (% of total population)	2010	24,3	24,4	49,4	50,6
Life Expectancy at Birth - Total (years)	2010	49,2	56,0	67,1	79,8
Life Expectancy at Birth - Female (years)	2010	49,9	57,1	69,1	82,7
Crude Birth Rate (per 1,000)	2010	41,9	34,2	21,4	11,8
Crude Death Rate (per 1,000)	2010	15,1	12,6	8,2	8,4
Infant Mortality Rate (per 1,000)	2010	102,9	78,6	46,9	5,8
Child Mortality Rate (per 1,000)	2010	181,7	127,2	66,5	6,9
Total Fertility Rate (per woman)	2010	5,3	4,4	2,7	1,7
Maternal Mortality Rate (per 100,000)	2008	830,0	530,2	290,0	15,2
Women Using Contraception (%)	2005-08	61,0	...
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2008	5,0	58,3	109,5	286,0
Nurses (per 100,000 people)*	2008	21,2	113,3	204,0	786,5
Births attended by Trained Health Personnel (%)	2006	45,1	50,2	64,1	...
Access to Safe Water (% of Population)	2008	56,0	64,5	84,3	99,6
Access to Health Services (% of Population)	2005-08	...	65,4	80,0	100,0
Access to Sanitation (% of Population)	2008	26,0	41,0	53,6	99,5
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	1,5	4,9	0,9	0,3
Incidence of Tuberculosis (per 100,000)	2009	324,0	294,9	161,0	14,0
Child Immunization Against Tuberculosis (%)	2009	81,0	79,9	81,0	95,1
Child Immunization Against Measles (%)	2009	86,0	71,1	80,7	93,0
Underweight Children (% of children under 5 years)	2006	27,9	30,9	22,4	...
Daily Calorie Supply per Capita	2007	2 614	2 465	2 675	3 285
Public Expenditure on Health (as % of GDP)	2008	5,5	5,7	2,9	7,4
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2009	94,7	102,7	107,2	101,3
Primary School - Female	2009	86,3	99,0	109,2	101,1
Secondary School - Total	2009	38,3	37,8	62,9	100,1
Secondary School - Female	2009	30,1	33,8	61,3	99,6
Primary School Female Teaching Staff (% of Total)	2009	26,8	47,0	60,5	81,4
Adult literacy Rate - Total (%)	2006	26,2	64,8	80,3	98,4
Adult literacy Rate - Male (%)	2006	34,9	74,0	86,0	98,7
Adult literacy Rate - Female (%)	2006	18,2	55,9	74,8	98,1
Percentage of GDP Spent on Education	2009	4,4	4,6	3,8	5,0
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2008	4,0	7,8	10,6	10,9
Annual Rate of Deforestation (%)	2005-09	...	0,7	0,4	-0,2
Annual Rate of Reforestation (%)	2005-09	...	10,9
Per Capita CO2 Emissions (metric tons)	2009	0,1	1,1	2,9	12,5



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators;

last update :

May 2011

UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.

Note : n.a. : Not Applicable ; ... : Data Not Available.

Appendix III

Major Related Projects Financed by the Bank and Mali's Other Development Partners

No	Project	Host Structures	Amount	Source of Financing	Objectives
1	Administration Intranet Project	MPNT, AGETIC	CFAF 16 billion	European Union, Canada and Finland	Interconnect public services to facilitate data exchange and online work
2	E-Post and E-Government Project	MPNT, ONP, AGETIC	CFAF 20 billion	South Korea	Create a fibre optic backbone through the River Niger Inland Delta and connect all the country's post offices.
3	Modernization of Mali's Optical and Information Network	MPNT	CFAF 20 billion	China	Create a backbone on the classic Bamako-Segou-Mopti-Gao-Kidal route.

Project Map

